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# Studies on the genus *Atheta* THOMSON and its allies I : *Amidobia*

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## Studies on the genus *Atheta* THOMSON and its allies

(Coleoptera, Staphylinidae)

### I: *Amidobia*

By

Kohei Sawada

After I have discussed the crucial characters to recognize each species of Aleocharinae in my previous paper, (K. Sawada, 1972) I have made trial how to bring these results in practice. The genus *Atheta* THOMSON, 1858 is selected for the purpose as it furnishes a nice and favourable thesis with its abundance and diversity of species. It includes more than 1200 known forms widely distributed in the whole world which are similar to each other in external features and regarded as "the most difficult group to deal with of all the genera of Coleoptera" (SHARP, 1888).

Among various subgenera of *Atheta*, three subgenera, *Amidobia*, *Microdota* and *Philhygra* compose the nearly related groups having the characteristics in common that the median area of the prementum is glabrous and destitute of any pseudopores. Actually BRUNDIN (1948) has synonymized *Amidobia* with *Microdota* and later LOHSE (1971) has cited the priority of the name *Amidobia* over *Microdota*, while *Philhygra* is strictly separated from them by the presence of peculiar fringed setae on stern. VIII of male as well as by the reduction of spermatheca in female (BRUNDIN, 1942). After close examination of *A. talpa* (HEER) and *M. amicula* (STEPHENS), which are types of *Amidobia* THOMSON, 1858 and *Microdota* MULSANT ET REY, 1873, it has been revealed that there is no fundamental difference in the detailed characters of the body between them as may be seen in the description of these species below. Therefore the name *Amidobia* is chosen in this paper.

### *Amidobia* THOMSON, 1858

typical species: *Homalota talpa* HEER, 1841

Body small, abdomen parallel. Antennae dilated distally, with segment III much shorter than II, X is broader than long. Labrum emarginate. Median area of prementum smooth, without pseudopores. Microsculpture of terg. VIII either reticulate or imbricate. Terg. VII apparently impunctate or nearly so. In all species known to me the proximal row of labral setae is shorter than the distal row. *a*-sensilla of the labral margin is setaceous. Seta *m*-2 of labrum is anterior in position, on the level of *m*-1 at least.  $\gamma$ -setula of labial palpus is not surpassing the level of seta *f*. Median lobe of aedeagus normally developed, obtuse or pointed on apex. Spermatheca is normally developed.

Many species have been described from Japan as belonging *Microdota* by the

previous authors (SHARP 1888, BERNHAUER 1907, 1938, CAMERON 1933). But, after examining the type of each species it has been revealed that the following species must be excluded from *Amidobia* (= *Microdota*) as far as the external features are concerned:

- A. gyrophaenula* (SHARP, 1888)
- A. oligotinula* (SHARP, 1888)
- A. granulipennis* BERNHAUER, 1907
- A. denticauda* BERNHAUER, 1907

Following species are very alike to *Amidobia*, but not surely determinable at present:

- A. sublaevigata* BERNHAUER, 1907
- A. ocyusina* BERNHAUER, 1907
- A. silvatica* BERNHAUER, 1907
- A. flavonitescens* BERNHAUER, 1938

Key to the species of *Amidobia* (= *Microdota*) treated in this paper is as follows:

1. Distal segment of the lateral lobe of aedeagus long, nearly half the length of the medial segment. In all known species terg. VIII of male has strong dentation along the hind margin (*spiniventris*-group) ..... 2
- Distal segment of the lateral lobe of aedeagus short, Terg. VIII of male is truncate, crenulate or denticulate..... 4
2. Suspensoria of aedeagus largely membranous and short ..... 3
- Suspensoria of aedeagus well sclerotized and long ..... *A. bogorensis* (K. SAWADA, 1971) (Java)
3.  $\gamma$ -setula of labial palpus is on the level of seta *b*. Paramedian apophyses of aedeagus with an outer basal spine..... *A. vagans* BERNHAUER, 1907
- $\gamma$ -setula of labial palpus is posterior to the level of seta *b*. Paramedian apophyses of aedeagus without outer basal spine..... *A. spiniventris* BERNHAUER, 1907
4. Pubescence of the pronotum along the middle is directed forwards..... 5
- Pubescence of the pronotum along the middle is directed backwards..... *A. ontakensis* n. sp.
5. Posterior margin of elytra emarginate..... *A. talpa* (HEER, 1841) (EUROPE)
- Posterior margin of elytra not emarginate..... 6
6. Paramedian apophyses of aedeagus confluent apically (*nakanei*-group)..... 7
- Paramedian apophyses of aedeagus not confluent apically..... 8
7. Elytra normally long, winged..... *A. kawachiensis* n. sp.
- Elytra reduced, apterous..... *A. nakanei* (K. SAWADA, 1970)
8. Apex of the copulatory piece not bifurcate. Median area of the prementum is not furrowed..... 9
- Copulatory piece apically bifurcated. Median area of the prementum is with a median furrow ..... *A. nopporensis* n. sp.
9. Paramedian apophyses of aedeagus are sclerotized and not sacculate..... 10
- Paramedian apophyses of aedeagus membranous and sacculate. Terg. VIII of male with distinct dentation..... *A. formicetorum* BERNHAUER, 1907
10. Median apophysis of aedeagus with a straight median sclerite (*amicula*-group)..... 11
- Median apophysis without a median sclerite (*kobensis*-group)..... 12
11. Spermatheca reflected, but not coiled. Median lobe of aedeagus is narrow, with rather pointed apical lobe..... *A. amacula* (STEPHENS, 1832) (EUROPE)
- Spermatheca long and coiled. Median lobe of aedeagus is broad, with a rounded apical lobe ..... *A. subcrenulata* BERNHAUER, 1907

12. Glossa normally bifurcate.....13  
Glossa trifurcate.....*A. unidentata* (K. SAWADA, 1971)
13. Paramedian apophyses of aedeagus incurved and unciform.....14  
Paramedian apophyses of aedeagus straight and pointed.....*A. puthzi* n. sp.
14. Glossa is broad and shallowly forked. Spermatheca is entirely coiled.....15  
Glossa is fairly narrow and deeply forked. Spermatheca is simply reflected.....*A. yoshidai* n. sp.
15. Paramedian apophyses of aedeagus well developed, variegated, but never hooked apically.....16  
Paramedian apophyses of aedeagus reduced, slender and hooked at apices.....*A. spinula* (K. SAWADA, 1970)
16. Paramedian apophyses of aedeagus broad, truncate and straight.....17  
Paramedian apophyses of aedeagus slender, pointed and incurved.....18
17. Distal process of the median apophysis of aedeagus is gradually diverging behind.....*A. muris* n. sp.  
Distal process of the median apophysis of aedeagus is abruptly diverging.....*A. bulbousa* n. sp.
18. Paramedian apophyses of aedeagus with an inner tooth.....19  
Paramedian apophyses of aedeagus without inner tooth.....20
19. Seta *p*-2 of the labrum is anterior to the level of *p*-1. Microsculpture of terg. VIII is reticulate-type.....*A. kobensis* CAMERON, 1933  
Seta *p*-2 of the labrum is on the same level with *p*-1. Microsculpture of terg. VIII is imbricate-type.....*A. oviformis* (K. SAWADA, 1970)
20. Seta *p*-2 of labrum is posterior to the level of *p*-1. Microsculpture of terg. VIII is imbricate-type.....*A. vulpina* n. sp.

***Atheta (Amidobia) talpa* (HEER, 1841)**

(Fig. 1)

Male: Ratio of antennal segments as: I  $14 \times 6.2$  : II  $11 \times 6$  : III  $7 \times 6$  : IV  $5.5 \times 6.8$  -X  $5.5 \times 9$  : XI  $13.5 \times 9$ . Seta *m*-2 of labrum (Fig. 1, A) is close to the level of *m*-1. *a*-sensilla of the labral margin (Fig. 1, B) is short and broad at base; *c* is quite obtuse.  $\gamma$ -setula of labial palpus (Fig. 1, C) is on the level of seta *b*, which is fairly anterior to *a*, so that the distance between *b* and *f* is much shorter than between *a* and *e*;  $\delta$  is normally placed on the level of *h*. The median area of prementum (Fig. 1, C) is relatively broad and smooth. The setal and real pores of the lateral area are normally arranged, but the pseudopores are poorly defined and few in number. Seta *a*-2 of terg. VIII (Fig. 1, E) is remote from the stigma. The microsculpture on it (Fig. 1, F) is reticulate-type, each reticulum is longer than broad and angulate at apex.

Costa *dt.ap.* of the median lobe (Fig. 1, G) is fairly broad, when compared to others; *ar.c.* are apparently very short and confluent in the middle; *m.c.* is present near the foramen; *v.ap.* is developed, but narrow and with irregular lateral margins; *p.c.* has a low projection. Paramedian apophyses of the inner armature (Fig. 1, J) are represented by boubous saccules bearing many coarse and flat roughness all over. Median apophysis is composed of paired, feebly sclerotized distal processes (*p* in Fig. 1, J) and a broad basal plate (*b*) extending posteriorly and without transverse sclerite. Copulatory piece is gradually tapering to an obtuse apex, where it is very thin, trans-

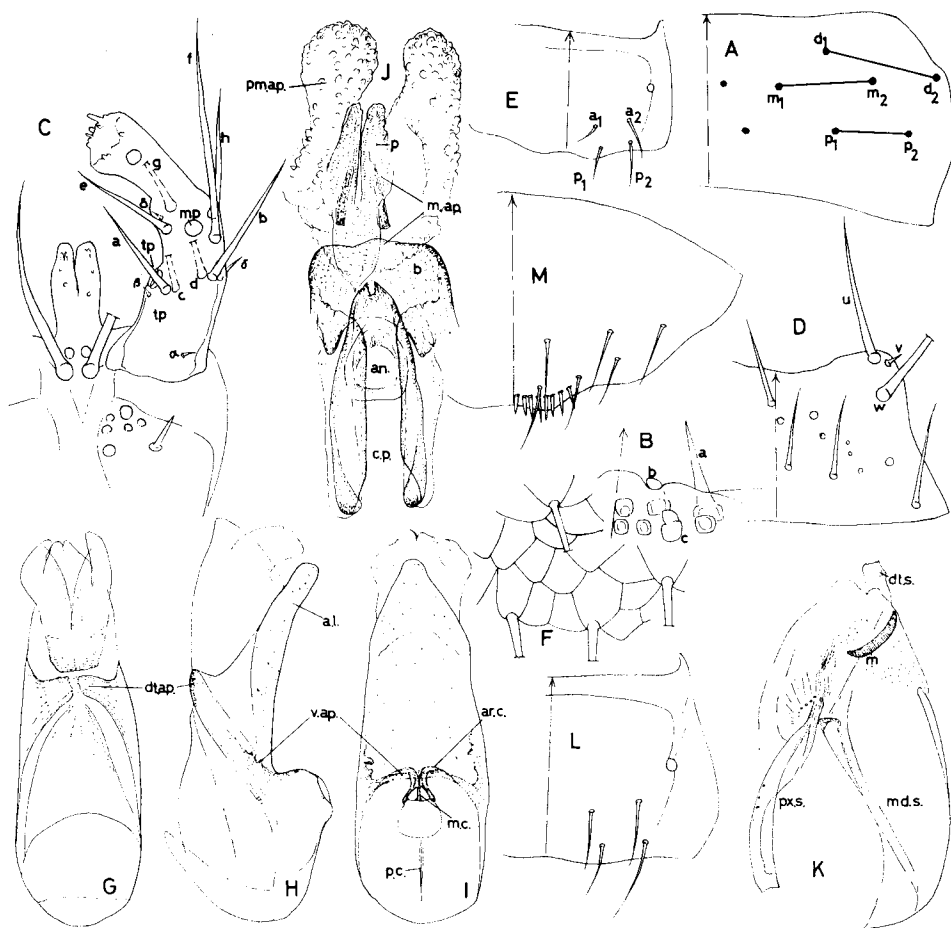


Fig. 1. *Atheta (Amidobia) talpa* (HEER, 1841) from Hamburg (♂) & Lunz (♀). A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, ♂ terg. VIII; F, ditto, microsculpture; G, H, I, Median lobe (dors. lat. & ventr. view); J, Inner armature of aedeagus; K, Lateral lobe; L, ♀ terg. VIII; M, ♀ stern. VIII.

parent and turned upwards; annellus is placed before the middle, so that it appears to have a long posterior process on each side; suspensoria are almost obliterated, but fairly prolonged along the corpus. Lateral lobe (Fig. 1, K) is moderate in size; a narrow, crescent apodeme (*m* in Fig. 1, K) is present in the middle. Distal segments are not observed, being damaged in the example examined.

Length. 1.80 mm (Head long 0.26 mm × 0.27 mm wide; pronotum 0.26 mm × 0.34 mm; elytra 0.27 mm × 0.48 mm).

Female: Stern. VIII (Fig. 1, M) is slightly produced at the middle of the hind margin, which is shallowly emarginate in its full length and provided with a series of ca. 8+8 short setae. Spermatheca is as in BRUNDIN 1948.

I have examined 1♂ from Hamburg (det. LOHSE) and 1♀ from Lunz (det. PUTHZ).

Peculiar to this species the elongate median lobe of aedeagus, membraneous paramedian apophyses etc. may be cited. But these differences represent rather specific characters and in the essential scheme of the body it is concordant with the species hitherto placed in *Microdota*.

***Atheta (Amidobia) spiniventris* BERNHAUER 1907**

(Fig. 2)

Syn. nov. *Atheta (Microdota) spinicauda* BERNHAUER, 1907

Male: Ground colour reddish brown, subopaque and very finely pubescent on the fore-parts; head brown; pronotum uniformly reddish brown to reddish yellow; elytra brownish, but fairly rufescent on basal portion; abdomen reddish yellow, gradually infusate toward the extremity and then suddenly dark on terg. V-VII; antennae brown, basal segments reddish; legs pale reddish brown. Head is rather small, gently flattened above and fairly retracted basally behind the eyes; a feeble median fovea on the vertex is distinguished; the surface is not densely, but closely punctured and with very short pubescence. Eyes are large, clearly protruded from the head and about two times the length of the post-genae. Antenna is normally long, distinctly dilated distally; ratio of segments as: I  $14 \times 8.7$  : II  $11 \times 7$  : III  $8.5 \times 7.5$  : IV  $6 \times 8.3$  - X  $6.5 \times 11.5$  : XI  $19 \times 11.3$ . On labrum (Fig. 2, A) seta *p-1* is on the same level with *p-2*. *a*-sensilla of the labral margin (Fig. 2, B) is relatively short; *b* is elongate and apparently longer than *c*. From labial palpus (Fig. 2, C)  $\gamma$ -setula is far remote from seta *b*; *a* is slightly posterior to *b*; *c* is nearly on the level of *f*. On prementum the median area is normally narrow; the setal pore of the lateral area is a little anterior to the anterior real pore; the pseudopores are small and few in number. Pronotum is weakly convex above, with an obsolete median depression which is very narrow and discernible only in a favourable angle; the sides are indistinctly narrowed behind; the lateral erecting setae are inconspicuous; the surface is covered with dense, fine punctures, minute setae and indistinct microsculpture. Elytron is neither dilated nor emarginate behind; the surface is furnished with very fine asperities densely distributed throughout. Abdomen is minutely, densely punctulate and with short erecting setae on it. The dentation along the hind margin of terg. VIII is highly variable in shape even among specimens from same locality. It consists of four irregular teeth usually confluent to some extent (Fig. 2, D) in usual cases, but it reveals four or five definite teeth as in the Figs. F and P (type specimen). Rarely the dentation is completely confluent to form two large, dilated prominences (Figs. G, Q), in which the former is the type of *A. spinicauda* BERNHAUER, 1907. Rarely the reduction of dentation proceeds as in Fig. E, by which they are transformed to irregular crenulation.

The median lobe of aedeagus (Fig. 2, H, I, J) is ovate and abruptly tapering

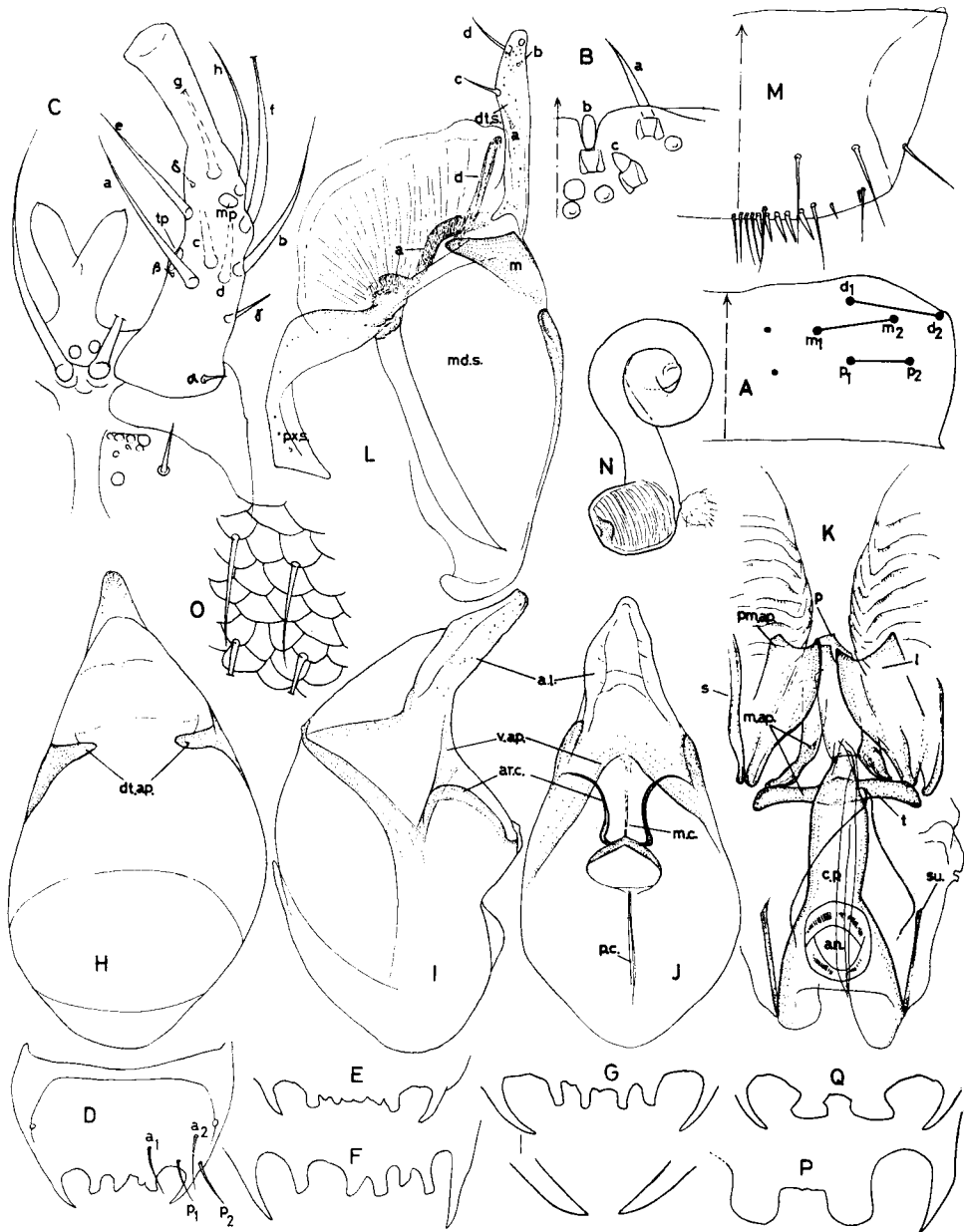


Fig. 2. *Atheta (Amidobia) spiniventris* BERNAHNER, 1907 from Kibune. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, E, F, G, Terg. VIII (♂) from Kibune, do, Yase and Daigo; H, I, J Median lobe of aedeagus (dors. lat. & ventr. view); K, Inner armature; L, Lateral lobe; M, Stern. VIII (♀); N, Spermatheca; O, Microsculpture of terg. VIII; P, Terg. VIII (♂) of f. *spinicanda* Bh. 1907 from Kanagawa (Type); Q, Ditto from Mt. Hiei.

distally; the apical lobe is suddenly bent down behind the middle and not raised at apex; costa *ar.c.* are widely separating together, nearly parallel and very broadly rounded anteriorly; *v.ap.* is unusually produced to form inversed V-shape; *m.c.* is almost completely obliterated and *p.c.* has a distinct projection. In the inner armature (Fig. 2, K) the paramedian apophyses are represented by a pair of elongate, erecting laminae (*l* in Fig. 2, K), whose apex is uniformly emarginate in its full length and with a cuspidate corner. The median apophysis is composed of two longitudinal laminae (*p*) with a finely angulate apex and a well-sclerotized transverse sclerite (*t*). Copulatory piece is divergent behind the annellus, which is situated near the base. Therefore, the basal part is fairly reduced and with a short process on each side; the anterior part is nearly parallel and ending in an obtuse apex; suspensoria are membranous, with a styliform basal sclerite. Lateral lobe (Fig. 2, L) is broad, with a triangular apodeme (*m* in Fig. 2, L) in the middle and an accessory apodeme (*a*) along the lamellar sacculus. An another prolonged sclerite (*d*) is present along the distal segment, which is very long, more than two-thirds of the medial segment and lightly constricted in the middle. Seta *a* is placed at about the middle, while *b* is anterior, close to *d*; *c* is as long as *d*.

Length. 2.10 mm (Head long  $0.28 \times$  wide  $0.37$  mm; pronotum  $0.3$  mm  $\times$   $0.42$  mm; elytra  $0.32$  mm  $\times$   $0.52$  mm).

Female: Stern. VIII (Fig. M) is hardly emarginate behind and with a row of up to  $10+10$  short and long marginal setae. Spermatheca (Fig. 2, N) is short and with compactly coiled duct; the bursa is short and with a small, low umbilicus.

Specimens examined: KYOTO: Hanase, 5♂, 4♀, (11.IX 1972, R. Yosii); Kurama, 14♂, 18♀, (20.VII 1972, R. Yosii); Ninose nr. Kurama, 3♂, 6♀, (18.IX 1972, R. Yosii); Yase, 10♂, 13♀, (12.IX 1971, R. Yosii); Yonaki-tooge, 2♀, (22.IX 1973, R. Yosii); Hieizan, 11♂, 23♀, (12.IX 1971, R. Yosii), 1♂, 1♀, (27.V. 1971, R. Yosii), 1♂, (7.VI 1971, R. Yosii); Midorogaike, 4♂, 20♀, (13.X 1971, m.); Daimonjiyama, 2♂, 1♀, (12.V 1971, R. Yosii); Iwakura, 3♂, 3♀, (10.VII 1970, m.); Funaokayama, 1♀, (29.V 1971, R. Yosii); Kitashirakawa, 8♂, 3♀, (12.V 1971, m., 3♂, 2♀, 13.IX 1971, m.); Sookokuji nr. Imperial Palace, 5♂, 2♀, (27.VII 1970, R. Yosii); Daigo, 1♀, (4.XI 1972, R. Yosii); Yoshida, 2♂, 2♀, (4.VIII 1971, m.); Yoshidayama, 8♂, 12♀, (13.IX 1971, m.), 1♂, (12.IX 1972, R. Yosii). OSAKA: Minoo, 1♂, (4.VI 1973, R. Yosii); Maeshima nr. Takatsuki, 1♀, (15.IX 1973, m.). NARA: Kasugayama, 8♂, 22♀, (24.X 1972, m.), 2♂, 3♀, (29.VII 1972, m.). OKAYAMA: Mitsuishi, 1♀, (6.V 1973, R. Yosii).

In the present species the male tergal dentation varies considerably as mentioned above, but as far as the other external features are concerned the type specimen (♂) from Kanagawa coincides well with our specimens. No variability of body colour is present in the specimens examined excepting the colour gradations, which occur as the maturity goes on. *A. spinicauda* BERNHAUER, 1907 should be a forma of *A. spiniventris*, as this type of specimens coincides in every details including the male genital apparatus with the typical ones. Proximally dislocated annellus of



copulatory piece, very broad lateral lobe with markedly prolonged distal segment and not emarginated hind margin of terg. VIII in female are the characteristics of the present species.

***Atheta (Amidobia) vagans* BERNHAUER, 1907**

(Fig. 3)

Syn. nov. *Atheta (Microdota) bichuensis* CAMERON, 1933

Syn. nov. *Atheta (Microdota) oishiensis* CAMERON, 1933

Male: Ground colour brown, subopaque and with minute pubescence; head is fuscous, while pronotum is brown; elytra are similarly coloured, but fairly infusate posteriorly; abdomen is reddish brown, but suddenly fuscous on terg. VI-VIII; antennae are brown, scarcely paler toward base; legs pale brown. Body rather broad; head is moderate in size, apparently constricted behind eyes and with a very obsolete median fovea. Anterior to the fovea a faint convexity is present, when closely observed. The surface is nearly subopaque by dense microsculpture and fine punctures. Eyes large, about two times the length of the post-genae. Antenna normal and stout; ratio of segments as: I  $14 \times 9$  : II  $10 \times 6.6$  : III  $7 \times 7.6$  : IV  $6 \times 8$  -X  $6 \times 11$  : XI  $19 \times 10.8$ . On labrum (Fig. 3, A) seta *p-1* is clearly posterior to the level of *p-2*. *b*-sensilla of the labral margin (Fig. 3, B) is very large, when compared to *c*. From labial palpus (Fig. 3, C)  $\gamma$ -setula is just posterior to the level of *b*; *a* is on the same level with *b*. The median area of prementum is smooth and very narrow; anterior real pore of the lateral area is small and mingled with pseudopores. *v*-setula of mentum is close to seta *u* in position. Pronotum is convex above, lightly flat and not foveolate along the middle; the sides are only feebly converged posteriorly and with straight margin; the lateral erecting setae are very short and straight; the surface is much more densely and finely punctured than on the head. Elytron is nearly parallel, very finely, but a little more roughly punctured than the pronotum. Abdomen is very finely and densely punctured, the punctures are sparser toward the extremity. Terg. VIII (Fig. 3, E) is with distinct teeth highly variable in shape and arrangement as shown in Figs. E-J. These 4-5 inner teeth are provided with a pair of incurved lateral spine, which is lightly surpassing the medial teeth and with a faint furrow or thickening along the distal part. Seta *a-2* (Fig. 3, E) is fairly close to the stigma. Paramedian apophysis of the inner armature (Fig. 3, M) is represented by a pair of broad lamina, whose outer angle (*a* in Fig. 3, M) is acutely pointed to a slender spine and finely serrulate along the anterior margin (*m*). Median apophysis is composed of a pair of narrow, translucent laminae (*l*), which are basally narrowed, sclerotized and confluent with the basal transverse sclerite (*t*). Copulatory piece is more or less divergent posteriorly and gradually tapering anteriorly to an obtuse apex; suspensoria are poorly sclerotized, apparently reaching the middle of the corpus. Lateral lobe (Fig. 3, N) is rather slender when compared with that of *A. spiniventris*. The median apodeme (*m* in Fig. 3, N) is acutely pointed and with a faint accessory apodeme (*a*); the distal segment is long and a little expanded posterior to the middle, where seta *a* is placed; *b* is similarly short and located at the middle of *c* and *d*. Basal corner of the segment is not produced.

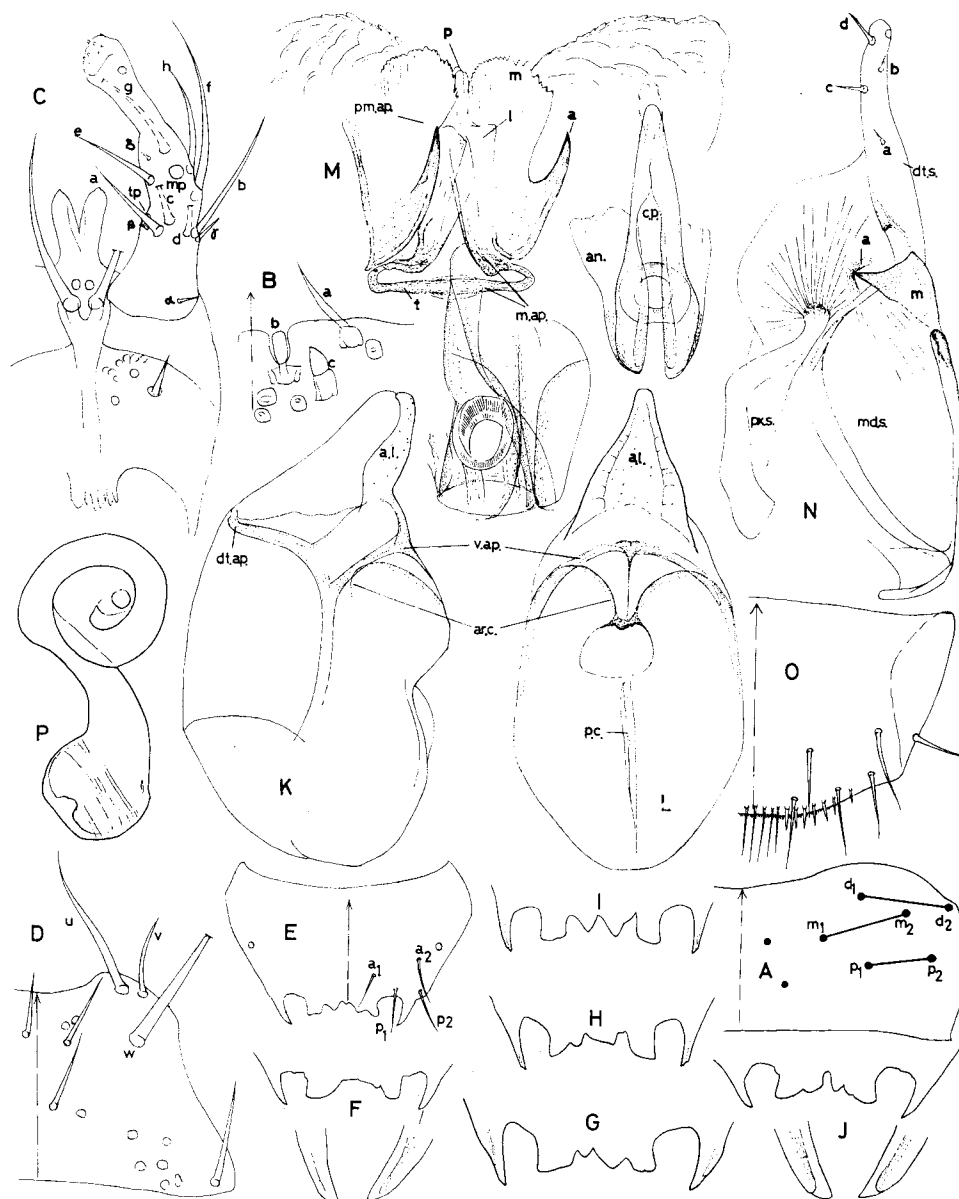


Fig. 3. *Atheta (Amidobia) vagans* BERNHAUER, 1907 from Kitashirakawa. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, G, H, I, J, Terg. VIII ♂ from Kibune, Midorigaike, Kanagawa (Type), Kobe, Okayama & Daigo; K, L, Median lobe of aedeagus (lat. & ventr. view); M, Inner armature of aedeagus; N, Lateral lobe; O, ♀ stern. VIII; P, Spermatheca.

Length. ca. 1.75 mm (Head long 0.25 mm  $\times$  wide 0.34 mm; pronotum 0.28 mm  $\times$  0.38 mm; elytra 0.31 mm  $\times$  0.47 mm).

Female: Stern. VIII (Fig. 3, O) is not emarginate behind and with up to 11 + 11 long and short marginal setae. Spermatheca (Fig. 3, P) is nearly as in *A. spiniventris*, but the bursa is broader than long.

Specimens examined: SHIGA: Sekigahara, 1♂, (1.IX 1973, m.): KYOTO: Midorogaike, 6♂, 9♀, (22.X 1971, R. Yosii); Mt. Hiei, 1♂, (15.IX 1971, R. Yosii); Yoshidayama, 2♂, 1♀, (12.IX 1972, R. Yosii); Kitashirakawa, 4♂, 10♀, (7.V 1971, m., 1♂, 4♀, (12.V.1971, m.), 1♂, 5♀, (24.VI 1972, R. Yosii); Yoshida, 2♂, 3♀, (19.X 1971, m.); Higashiyama, 6♂, 7♀, (21.IX 1972, R. Yosii); Sookokuji nr, Imperial Palace, 4♂, (27.VII 1970, R. Yosii); Daigo, 2♂, (4.XI 1972, R. Yosii); Fushimi-Inari, 2♂, 4♀, (22.V 1973, R. Yosii); Otokoyama, 1♂, 2♀, (29.VIII 1972, R. Yosii): OSAKA: Takatsuki, 16♂, 22♀, (1.IX 1973, m.); Konryuji nr. Takatsuki, 1♂, 4♀, (4.IX 1973, m.). NARA: Kasugayama, 2♂, 4♀, (29.VII 1972, m.); Kashiwagi, 2♂, 1♀, (8.IX 1973, R. Yosii). HYOGO: Takarazuka, 1♂, (20.VIII 1973, M. TANAKA). KOCHI: Ukitsu, 4♂, 3♀, (6.IV 1973, R. Yosii). KAGOSHIMA: Shiroyama, 1♂, 3♀, (24.VII 1972, R. Yosii).

Unless the genital apparatus is examined, it is very difficult to distinguish this species from *A. spiniventris*. But the lateral tergal spine of male has slight, submerged thickening, which is, although very difficult to observe, never occurred in the cited species. Besides, the present species has following peculiarities:  $\gamma$ -setula is placed at the level of seta *b*, the paramedian apophysis has an acute external angle and serrulate anterior margin and basal corner of the distal segment of lateral lobe is not extended. The variability of the tergal dentation is considerable among specimens examined, but it is less conspicuous than in *B. spiniventris*. Through examination of type series *A. bichuensis* CAMERON, 1933 and *A. oishiensis* CAMERON, 1933 appear to me to be synonyms with the present species.

***Atheta (Amidobia) bogorensis* (K. SAWADA, 1971)**

(Fig. 4)

*Ischnopoda (Microdota) bogorensis* K. SAWADA, 1971

Male: Median lobe of the aedeagus (Fig. 4, A) is ovate basally and suddenly narrowed distally before the distal apodeme; the apical lobe is very slender and converging; in profile it is sinuately sloping down and then gently turned upwards; costa *ar.c.* (Fig. 4, B, C) are seemingly short and only slightly approximate in the middle; *v.ap.* is fairly formed; *p.c.* has no projection. In the inner armature (Fig. 4, E) the paramedian apophyses are a pair of broad and apically truncate lobes, which have a short, pigmented projection (*b*) at the basis. Median apophysis is composed of stout, unciform distal process (*d*) standing side by side and a narrow transverse sclerite (*t*), which is divided into two lobes touching distally to form a styliform median process (*m*). Copulatory piece (Fig. 4, D) is long, unusually narrow and annellus is situated near the base, where there are paired thin coverings over the corpus. The suspensoria are well-developed, pointed and reaching the apex of the corpus. Lateral lobe

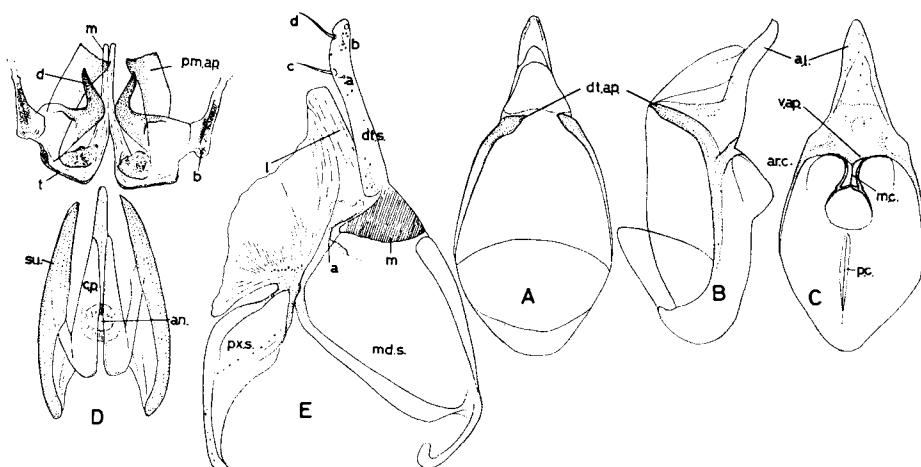


Fig. 4. *Atheta (Amidobia) bogorensis* (K. SAWADA, 1971); Type. A, B, C, Median lobe; D, Inner armature of aedeagus; E, Lateral lobe.

(Fig. 4, E) is broad at base; the membranous lamina (*l* in Fig. 4, E) is produced to an obtuse lobe distally; a large, triangular apodeme (*m*) is present in the middle together with an accessory apodeme (*a*); the distal segment is very long, being two-thirds of the medial segment in length, when measured along the lateral margin; seta *a, b* are strongly reduced; *c* is two times the width of the segment. (Nomination of setae *a, b, c, d* of this species in my previous paper must be read as *c, d, a, b*).

The reduced *a*-sensilla of the labral margin, large suspensoria and the structure of the inner armature are the features peculiar in the present species. The Javanese species is apparently close to *A. inutilis* KRAATZ, 1859 of Ceylon and Singapore. From the description of the cited species in CAMEON 1938, *A. bogorensis* has more slender antennae with fairly long third segment and male tergal dentation is more irregularly arranged.

***Atheta (Amidobia) ontakensis* n. sp.**

(Fig. 5)

Male: Ground colour is dark brown, clearly shining and with minute pubescence; head is intensively pigmented, while the pronotum is a little paler; elytra and abdomen are dark brown, the latter is lightly brighter toward base; antennae are blackish; legs brown, a little paler toward the tarsi. Head is rather small, broadly flattened above, and shallowly depressed at vertex; the integument has a few asperities and obsolete microsculpture. Eyes are large, well convex and fully as long as the post-ocular region which is lightly rounded. Antenna is relatively long; ratio of segment as: I  $14 \times 8.5$  : II  $10.5 \times 6.2$  : III  $6.5 \times 6$  : IV  $4 \times 7$ -X  $6.5 \times 11.2$  : XI  $16 \times 11$ . *c*-sensilla of the labral margin (Fig. 5, B) is strongly reduced compared to *b*.  $\gamma$ -setula of labial palpus (Fig. 5, C) is placed posterior to *b*. The median area of prementum is very broad in relation to the lateral area, where there is the setal pore situated clearly posterior to

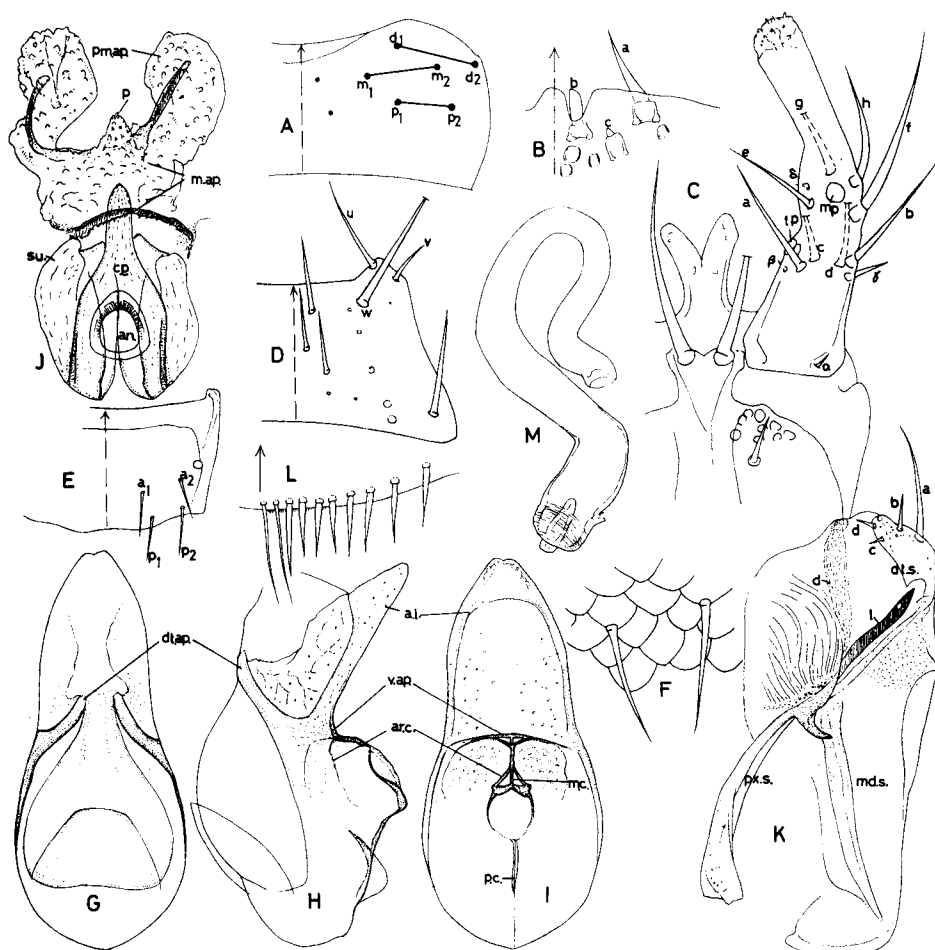


Fig. 5. *Atheta (Amidobia) ontakensis* n. sp. **A**, Labral chaetotaxy; **B**, Labral margin; **C**, Labium; **D**, Mentum; **E**, **F**, ♂ terg. VIII & its microsculpture; **G**, **H**, **I**, Median lobe (dors. lat. & ventr. view); **J**, Inner armature of aedeagus; **K**, Lateral lobe; **L**, ♀ marginal setae of stern. VIII; **M**, Spermatheca.

the real pores. The antero-external corner of mentum (Fig. 5, D) is abruptly produced; seta *w* is situated inward, so that it is remote from *u*. Pronotum is relatively small, evenly convex above, neither depressed nor foveolate along the middle; the surface is clothed with minute, sparse asperities and extremely fine, but distinct microsculpture throughout; the lateral erecting setae are long. Mesosternal process is briefly pointed, not reaching the middle of the coxal cavities. Elytron is not emarginate postero-externally; the puncture is coarse and the surface has a rugose appearance. Abdomen is obsoletely punctured and with very short erecting setae. Terg. VIII (Fig. 5, E) is narrowly truncate and slightly emarginate along the hind margin; seta *a-2* is nearer to the stigma than to *d-1*; the microsculpture (Fig. 5, E) is a regular im-

bricate-type, each reticulum is ending often in an angular apex. The median lobe of aedeagus (Fig. 5, G, H, I) has a long apical lobe, which is geniculate at the base, neither bending downwards nor hooked distally and with a fine emargination; the costa *ar.c.* are fairly confluent for some distance along the middle; *v.ap.* is very narrow; *p.c.* has a distinct projection. In the inner armature (Fig. 5, J) the paramedian apophyses are peculiar having a pair of membranous, succulent lobes; beneath them a long sclerotized element is present; the median apophysis has a narrow basal plate and a membranous, short distal process (*p* in Fig. 5, J) completely adherent to the paramedian apophyses; copulatory piece is rather unique in shape; the basal process posterior to annellus is strongly reduced; the apical process is robust, parallel and with an obtuse apex; suspensoria are membranous. From the lateral lobe a very elongate apodeme (*m* in Fig. 5, K) is present in the middle; on the large membranous lamina there is another indistinct apodeme (*d*). From the distal segment seta *a* is enormously long, surpassing the segment itself.

Length. 1.80 mm (Head long 0.38 mm  $\times$  wide 0.47 mm; pronotum 0.42 mm  $\times$  0.59 mm; elytra 0.47 mm  $\times$  0.78 mm).

Female: Stern. VIII is not emarginate behind, with 10+10 long and short setae (Fig. 5, L) along the hind margin. Spermatheca (Fig. 5, M) is long, with a largely recurved duct and a deflected apex; the bursa is not constricted and bears an unusually elongate umbilicus within.

Holo-(♂) and allotype: Nigorigo Spa. Mt. Ontake, Gifu Pref., (6.X 1972, Dr. R. YOSHI et m.).

In the shape of the inner armature of aedeagus, in the slender body form and dark body colour *A. ontakensis* sp. n. is unique among the *Amidobia* species of Japan. Bulbous paramedian apophyses of aedeagus are alike to that of *A. talpa*.

***Atheta* (*Amidobia*) *nakanei* (K. SAWADA, 1970)**

(Fig. 6)

*Ischnopoda* (*Ousipalia*) *nakanei* K. SAWADA, 1970

Male: Median lobe of the aedeagus (Fig. 6, A, B, C) is constricted behind the middle and gently bent down apically; costa *ar.c.* are broadly open distally; *m.c.* is diminishing just before the foramen; *v.ap.* is not formed. The paramedian apophyses are completely confluent apically, where a stout callus directed downwards is attached. The arm itself is narrow and sclerotized only along the margin. The median apophysis is reduced and sclerotized only along the lateral margin of the basal plate. Lateral lobe has a narrow apodeme (*l* in Fig. 6, E).

Female: Stern. VIII has a very shallow emargination and there is a row of long and short marginal setae.

New specimens examined: Shiga, Nagano Pref., 2♂, 1♀, (22.VI 1968, m.).

The present species is once placed in the subgenus *Ousipalia* DES GOZIS, 1886 by the reduced elytra, obliterated hind-wings and small eyes. But it must be placed in *Amidobia* by the character of mouth-parts. Through works of BRUNDIN, 1948 *Ousipalia* is now regarded a distinct genus, whose distribution is restricted to the Mediterranean

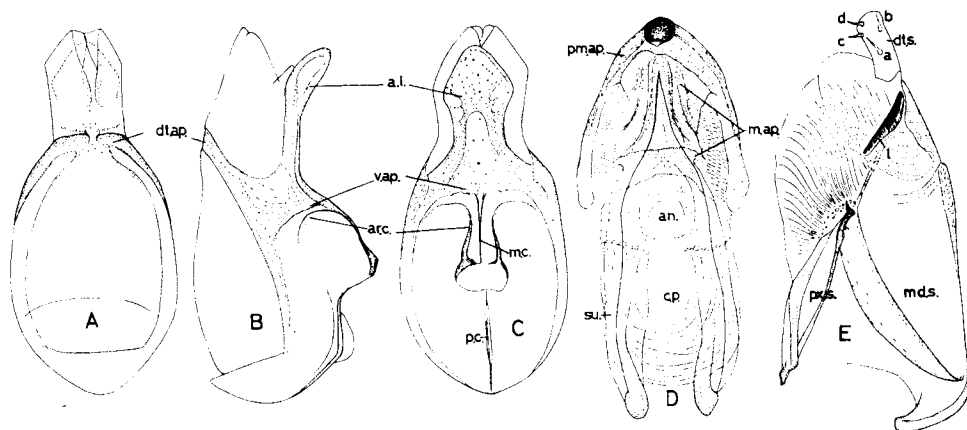


Fig. 6. *Atheta (Amidobia) nakanei* (K. SAWADA, 1970); Type, **A, B, C**, Median lobe (dors. lat. & ventr. view); **D**, Inner armature of aedeagus; **E**, Lateral lobe.

region and not to be adopted for this species. Probably it is comparable with *Alpinia* (BRUNDIN l.c.) spp. of the European Alps.

***Atheta (Amidobia) kawachiensis* n. sp.**

(Fig. 7)

Male: Ground colour reddish brown, subopaque in the fore-parts and with very short pubescence; head is intensively pigmented, whereas pronotum and elytra are paler; abdomen is brownish, terg. V-VII suddenly blackish. Body is broad. Head is relatively large, a little transverse and fairly rounded behind the eyes; vertex has a shallow depression and the surface is alutaceous with fine microsculpture. Eyes are characteristically small, its diameter is considerably shorter than the post-ocular region. Antenna is normally long, gradually dilated distally; ratio of segments as: I  $17 \times 8$  : II  $11 \times 6$  : III  $6 \times 6.7$  : IV  $5 \times 6.5$  - X  $6.7 \times 11$  : XI  $15 \times 11$ . On labral margin *b*-sensilla (Fig. 7, B) is obtuse at apex.  $\gamma$ -setula of labial palpus (Fig. 7, C) is just posterior to *b*; seta *f* is close to *b*, while *e* is normally separating from *a*. The median area of prementum (Fig. 7, C) is smooth, much narrower than the laterals; the setal pore of the lateral area is laterally dislocated near the distal real pore. *v*-setula of mentum (Fig. 7, D) is fairly close to *u* in position. The mesosternal process is briefly pointed behind. Pronotum is gently convex and has a faint depression along the middle, which is becoming deeper toward the base; the sides are a little narrowed basally; the lateral erecting setae are very fine and short; the surface is finely alutaceous, with obsolete punctures and never asperate. Elytron is a little dilated behind, and not emarginate postero-externally; the surface is slightly rougher than the pronotum. Abdomen is very obsoletely punctured on the basal tergites; the erecting setae are strongly reduced. Terg. VIII (Fig. 7, E) is truncate behind, and the margin is evenly straight in its full length.

The median lobe of aedeagus (Fig. 7, G, H, I) is 0.24 mm long; the apical lobe

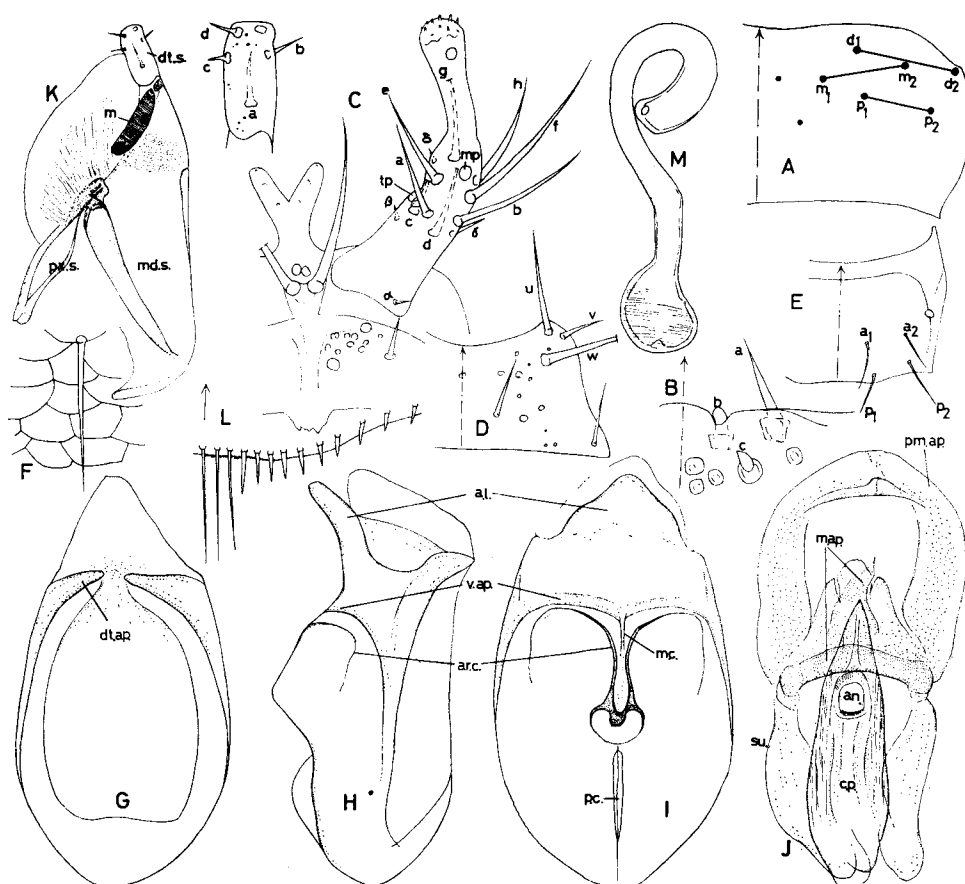


Fig. 7. *Atheta* (*Amidobia*) *kawachiensis* n. sp. **A**, Labral chaetotaxy; **B**, Labral margin; **C**, Labium; **D**, Mentum, **E, F**, ♂ terg. VIII & its microsculpture; **G, H, I**, Median lobe (dors. lat. & ventr. view); **J**, Inner armature of aedeagus; **K**, Lateral lobe; **L**, ♀ marginal setae of stern. VIII; **M**, Spermatheca.

is short, triangular in shape and distinctly bent downwards; the costa *ar.c.* are indistinctly approximate medially; *m.c.* is incomplete; *v.ap.* is feebly present; *p.c.* has a row projection. The paramedian apophyses of the inner armature (Fig. 7, J) are confluent apically, each arm is incurved, indistinctly sclerotized and without dentation; the median apophysis is a thin, pointed distal process, bearing an obtuse lateral lobe on each side, and with a broad, transverse sclerite posterior to them; the copulatory piece is long and gradually tapering to an acute apex before the annellus. Lateral lobe has a narrow apodeme (*m.* in Fig. 7, K) in the middle and without any sclerite on the membranous dilatation; the distal segment is parallel, fairly truncate; seta *a* is much longer than others, but not surpassing the segment.

Length. 2.10 mm (Head long 0.28 mm × wide 0.33 mm; pronotum 0.30 mm × 0.38 mm; elytra 0.32 mm × 0.46 mm).



Female: Stern. VIII is not emarginate behind; a row of up to 13+13 short and long marginal setae is present. Spermatheca (Fig. 7, M) is long; the duct is with a single coil and the bursa has a very small umbilicus.

Holo-(♂), allo- and paratypes (2♀): Hiraoka, Osaka Pref., (10.IV 1954, m.).

With its narrow median area of prementum, laterally dislocated setal pore, similar distal segment of the lateral lobe and long spermatheca the present new species is closely related to *A. nakanei* (K. SAWADA, 1970), but differs by normally developed hind wings, longer elytra, larger eyes and denser microsculpture of the fore-parts. Besides, the median apophysis of aedeagus is shorter and the costa *ar.c.* are more approximate.

***Atheta (Amidobia) nopporensis* n. sp.**

(Fig. 8)

Male: Ground colour is dark reddish brown and shining; head is nearly black; pronotum is dark reddish brown; elytra are fairly infusate in the posterior half; abdomen is dark brown, very gradually brighter toward the base and a little paler at apex; antennae are reddish brown and only slightly infusate distally; legs pale brown. Body is narrowly elongate. Head is seemingly broad, not depressed above and clearly retracted behind the eyes; the surface is very finely punctured and obsoletely sculptured all over. Eyes are normally large, fully as long as the post-genae. Antenna is long and fine; ratio of segment as: I  $16 \times 9$  : II  $11 \times 7$  : III  $10 \times 7.5$  : IV  $5 \times 9$  -X  $7 \times 12$  : XI  $24 \times 12$ . Seta *m-2* of labrum (Fig. 8, A) is separating from the distal row. *a*-sensilla of the labral margin (Fig. 8, B) is considerably reduced compared to that of other species; *c* may be small in relation to *b*. Setula *γ* of labial palpus (Fig. 8, C) is normally long and posterior to seta *b*; *δ* is longer compared to normal case and situated on the level of *g*; *f* is very near to *h*. The median area of prement (Fig. 8, C) is smooth as in others, but markedly with a longitudinal median furrow in its full length; the setal pore is at about the middle and the posterior real pore is placed just on the border of the median area. Seta *w* of mentum (Fig. 8, D) is remote from *u*. Pronotum is weakly convex above; a shallow, relatively narrow median depression is becoming deeper basally; the sides are rounded anteriorly and clearly retracted behind forming a distinct hind angle; the lateral erecting setae are very short; the surface is with dense, asperities throughout. Elytron is nearly parallel and not emarginate behind; the surface is similar to the pronotum, but a little rougher. From terg. V the abdomen is a little narrowed behind and with punctures denser at the basal tergites and very sparse on distal ones. Terg. VIII (Fig. 8, E) is truncate behind and with a gently emarginate margin.

Median lobe of the aedeagus (Fig. 8, G, H, I) is ovate basally and suddenly narrowed distally; the apical lobe is quite obtusely rounded at apex and straight apically; costa *dt.ap.* is very narrow; *ar.c.* are completely confluent along the middle and deeply emarginate in the middle having a low projection (Fig. 8, H) *v.ap.* is poorly developed; a narrow costa (*a* in Fig. 8, I) is present across the apical lobe. Paramedian apophyses of the inner armature (Fig. 8, J) are reduced to short, straight

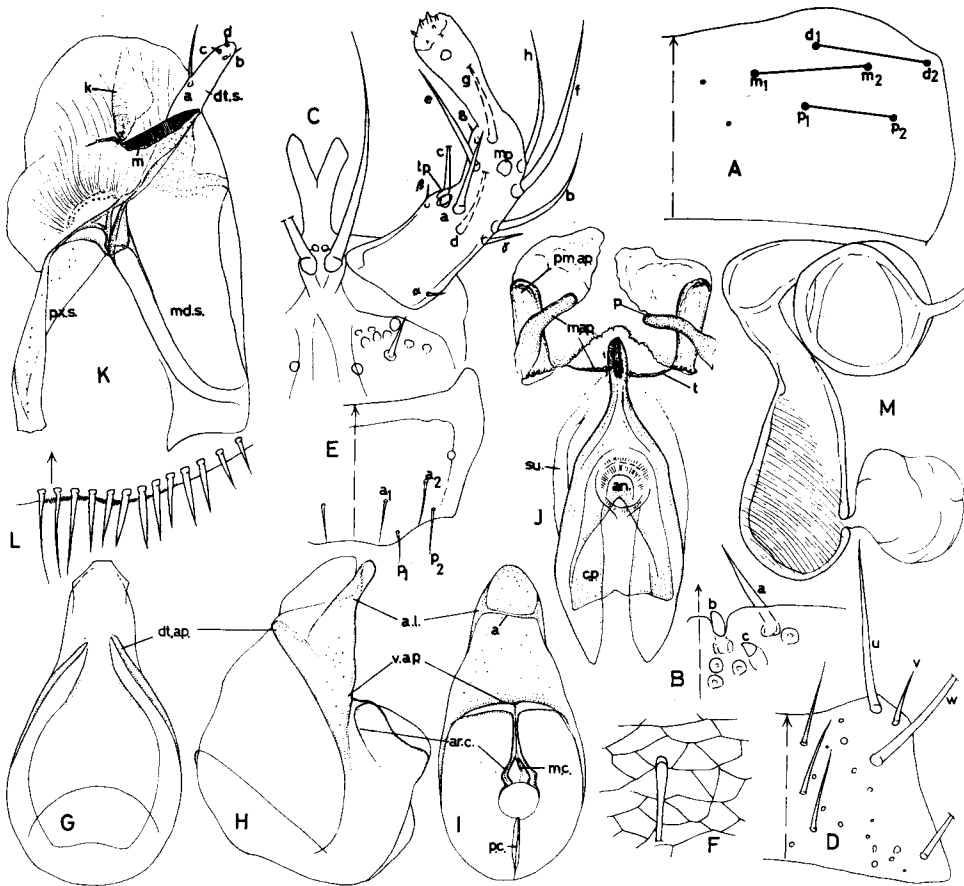


Fig. 8. *Atheta (Amidobia) nopporensis* n. sp. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, I, Median lobe (dors. lat. & ventr. view); J, Inner armature of aedeagus; K, Lateral lobe; L, ♀ marginal setae of stern. VIII; M, Spermatheca.

and obtuse sclerites; the median apophysis is also reduced, it is composed of narrow transverse sclerite (*t* in Fig. 8, J) and a pair of blunt lateral processes (*p*) of the median apophysis. Basal plate itself is not developed. Copulatory piece is fairly long, with a slender anterior process, which is distinctly forked to two narrow arms, a very peculiar feature of this species; the posterior process behind the annellus is fairly prolonged; suspensoria are membranous, very long and reaching the anterior process of the corpus. Lateral lobe has a slender apodeme (*m* in Fig. 8, K) in the middle, which is extended inward; the distal segment is narrowly elongate, parallel; seta *a* is much longer than *b* and placed behind the middle; *c, d* are quite small and apically.

Length 1.85 mm (Head long 0.29 mm × wide 0.31 mm; pronotum 0.28 mm × 0.38 mm; elytra 0.33 mm × 0.47 mm).

Female: Stern. VIII is lightly emarginate posteriorly; a row of ca. 12+12 long

and short setae (Fig. 8, L) is present. Spermatheca (Fig. 8, M) is peculiar in that the duct is fairly geniculate and ending in a large bulbous sac; the bursa is broadly elongate, straight and without umbilicus.

Holo-(♂), allo- and paratypes (2♂, 3♀): Nopporo nr. Sapporo, Hokkaido, (4.VIII 1972, Dr. R. YOSII).

Apically bifurcated copulatory piece of aedeagus, proximally dislocated  $\gamma$ -setula of labial palpus and bulbous spermatheca are the feature peculiar to *A. nopporensis* n. sp. In the present species the abdomen is slightly converged behind and lateral erecting setae of the pronotum are very reduced, but it would not belong to *Datomicra* MULSANT ET REY, 1873, as the details of mouth-parts are different from the cited subgenus.

***Atheta (Amidobia) formicetorum* BERNHAUER, 1907**

(Fig. 9)

Male: Pale reddish brown in ground colour, weakly shining and with dense microsculpture; head is dark brown and often rufescent apically; pronotum is pale reddish brown; elytra are reddish brown, but more or less infusate in the posterior half; abdomen is pale reddish brown, but distally darkened and suddenly blackish on terg. VI–VII, the latter tergites are often paler distally; antennae are pale brown, scarcely infusate distally; legs paler. Body stout; head is moderate in size, lightly transverse; a fine depression is present on vertex. When closely observed a faint prominence is discerned before the depression; the surface is distinctly alutaceous throughout. Eyes are large, fairly convex from the head contour and much longer than the post-genae. Antenna is normally long and clearly dilated distally; ratio of segment as: I  $20 \times 11$  : II  $13 \times 8$  : III  $10 \times 8$  : IV  $6 \times 10$  : X  $8 \times 13$  : XI  $23 \times 13$ . Labrum (Fig. 9, A) is only feebly emarginate in front; seta *m-2* is situated on the distal row and with up to 6+6 secondary setae instead of 2+2 in other species. *a*-sensilla of the labral margin (Fig. 9, B) is fairly long; *c* may be larger than *b*. From labial palpus (Fig. 9, C)  $\gamma$ -setula is on the same level with seta *b*;  $\delta$  is fairly posterior to *g*. The median area of prementum is smooth, narrow and constricted in the middle; the posterior real pore is close to the median area and on the same level with the setal pore. Mentum (Fig. 9, D) has the antero-external corner very broadly produced; seta *v* is fairly separated from *u*. Pronotum is convex above, flattened in the middle and with a faint median depression, which is feebly wide behind forming an obsolete basal fovea; the lateral erecting setae are very conspicuous; the surface is more finely alutaceous than the head. Elytron is broad, slightly dilated behind and feebly emarginate postero-externally; the surface is much rougher than on the pronotum. Abdomen is broad; each tergite is very obsoletely punctured, finely sculptured and with many black, erecting setae. Terg. VIII (Fig. 9, E) is modified by 4 posterior dentation, the lateral teeth of which are oblong and lightly surpassing the medial teeth, while the medial ones are broad at bases and quite obtuse at apices; the microsculpture is imbricate-reticular type.

Aedeagus (Fig. 9, G, H, I) has the median lobe ovate basally and narrowly pro-

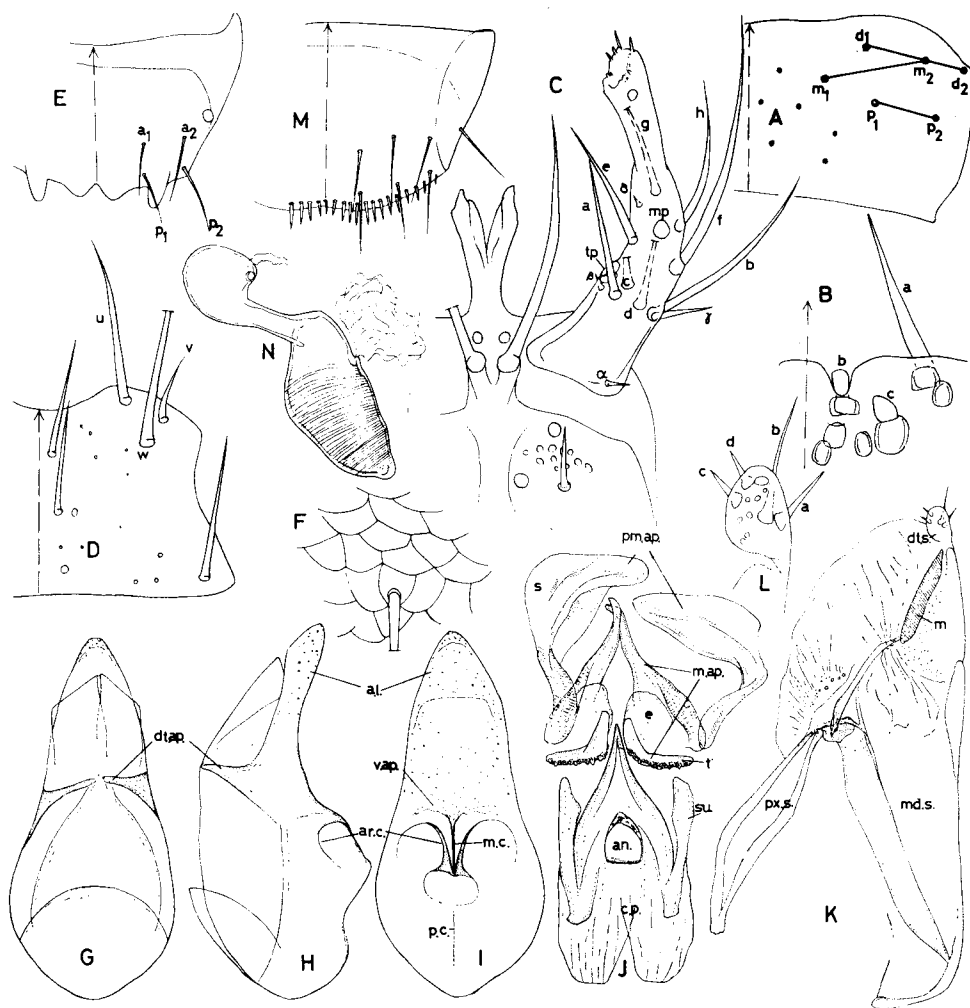


Fig. 9. *Atheta (Amidobia) formicetorum* BERNHAUER, 1907 from Daigo. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, ♂ terg. VIII; F, ditto, microsculpture; G, H, I, Median lobe of aedeagus (dors., lat. & ventr. view); J, Inner armature; K, Lateral lobe; L, Distal segment of lateral lobe; M, ♀ stern. VIII; N, Spermatheca.

duced apically; the apical lobe is rounded at apex, straight and slightly sloping down distally; costa *ar.c.* are relatively short and clearly diverging distally; *m.c.* is fine, but entire in its full length; *v.ap.* is replaced by a slight thickening. In the inner armature (Fig. 9, J) the paramedian apophyses are converted into a pair of almost membranous, sacculent lobes (*s* in Fig. 9, J); the distal process of the median apophysis is narrowly elongate and whose apex is minutely forked alike to that of *A. vulpina* n. sp.; the basal plate is represented by a paired lobate element (*e*) and the transverse sclerite (*t.*), the latter is abruptly curved anteriorly and slightly pigmented. Lateral lobe is

relatively narrow, with an elongate median apodeme (*m.* in Fig. 9, K); the distal segment is strongly reduced and rounded; seta *a* is short compared to *b*, which is fairly surpassing the segment.

Length. 2.45 mm (Head long 0.34 mm  $\times$  wide 0.44 mm; pronotum 0.39 mm  $\times$  0.5 mm; elytra 0.45 mm  $\times$  0.66 mm).

Female: Stern. VIII (Fig. 9, M) is slightly emarginate behind and with a row of up to 14+14 marginal setae. They are fairly shorter in the middle than the laterals, a character just opposite to other species of *Amidobia*. Spermatheca (Fig. 9, N) is peculiar in that the duct is short and with a large, rounded end; the bursa is elongate, very large and without umbilicus.

Specimens examined: KYOTO: Iwakura, 2♂, 2♀, (8.X 1973, m.); Daigo, 1♂, 1♀, (4.XI 1972, R. Yosui). TOTTORI: Kokoge 1♂, 1♀ (8.XI 1973, T. ARITA).

The type specimen from Kanagawa is a young female with a pale body colouration, which coincides well with my specimens as far as the external features are concerned. With its large body size, light colouration and sexual character of male the species is quite different from others. Inner armature of aedeagus and spermatheca are also peculiar to this species. All my examples have been found in association with fungus.

***Atheta (Amidobia) amacula* (STEPHENS, 1832)**

(Fig. 10)

Male: Ratio of antennal segments as: I 16.3  $\times$  7.5 : II 11  $\times$  6.5 : III 7  $\times$  7.2 : IV 5.5  $\times$  8-X 7  $\times$  10.7 : XI 17  $\times$  10. Seta *m-2* of labrum (Fig. 10, A) is remote from the distal row; *p-2* is clearly posterior to the level of *p-1*. *a*-sensilla of the labral margin (Fig. 10, B) is fairly long and lightly curved; *b* is narrow; *c* is unusually small and slender. From labial palpus (Fig. 10, C)  $\gamma$ -setula is just on the same level with seta *b*;  $\delta$  is minute and on the same level with *h*. Median area of prementum (Fig. 10, C) is normally narrow and smooth; setal pore is a little anterior to the posterior real pore, which is remote from the median area; small and large pseudopores are present. *v*-setula of mentum (Fig. 10, D) is normally long, and fairly close to seta *u*. Seta *a-2* of terg. VIII (Fig. 10, E) is close to the stigma; microsculpture on it is reticulate as in Fig. 10, F.

The costa of the median lobe of aedeagus (Fig. 10, G, H, I) is as follows: costa *dt.ap.* is very narrow and long; *ar.c.* are more or less approximate; *v.ap.* is not developed; *m.c.* is largely obliterated; *p.c.* has a low projection. In one male example before me, which is considerably in bad condition, the inner armature (Fig. 10, J) is highly complicated; Paramedian apophyses are prolonged to form translucent, slender anterior lobes. They are provided with a short process (*p* in Fig. 10, J), which is apparently confluent to the basal transverse sclerite (*t*). There is a straight, obtuse, basally divergent median sclerite (*m*) and basal plate of the median apophysis (*l*) is well-developed, and extending to the level of the annellus. Copulatory piece is nearly parallel up to the level of the annellus and then sinuately constricted anteriorly forming a blunt apical process; the suspensoria are almost membranous and slightly

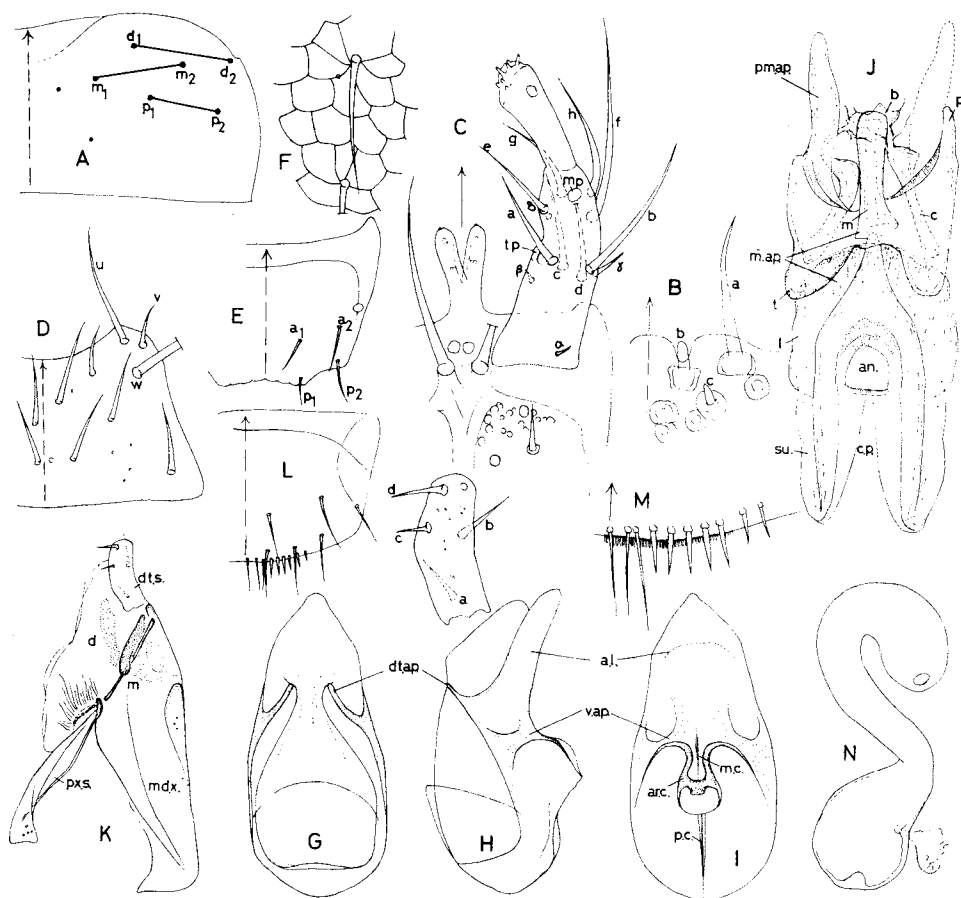


Fig. 10. *Atheta* (*Amidobia*) *amicala* (STEPHENS, 1832) from Ueberl. B.D.S. (♂) & Helgoland (♀). A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, I, Median lobe (dors. lat. & ventr. view); J, Inner armature of aedeagus; K, Lateral lobe; L, M, ♀ stern. VIII & its marginal setae; N, Spermatheca.

pigmented at base. Lateral lobe (Fig. 10, K) is normal in shape, but medial apodeme (*m* in Fig. 10, K) is fairly narrow. Similar accessory apodeme (*d*) is present on the laminate sacculus. Distal segment of the lateral lobe (Fig. 10, K) is short, elongate, subparallel and lightly curved to the outside; seta *a* is basal and equal to *b* in length and is nearly on the level of *c*, which is the smallest of all.

Length. ca. 1.80 mm (Head long 0.30 mm × wide 0.34 mm; pronotum 0.31 mm × 0.39 mm; elytra 0.34 mm × 0.52 mm).

Female: Stern. VIII (Fig. 10, L) is not emarginate in the middle of the hind margin and with a row of up to 10+10 short and long marginal setae (Fig. 10, M). Spermatheca (Fig. 10, N) is rather robust, not coiled, but fairly reflected at the end,

where the duct is broader; bursa is robust, very finely corrugated all over and with a small, low umbilicus.

Median lobe of this species is already described in BRUNDIN, 1948 to which my results coincide well. In the nomenclature of parts the median sclerite (*m*), lateral process (*p*) basal plate (*l*) and the copulatory piece (Fig. 10, J) may correspond to his FO-1, FO-2, LM and DL.

I have examined 1♂, 1♀ from Ueberl. BDS., (det. HORION) and 1♀ from Helgoland, (det. PUTHZ). *A. amacula* is the type of the subgenus *Microdota* MULSANT ET RAY, 1873, but as may be seen from the foregoing description, there is no fundamental difference in the minute details of the body between *A. talpa* and this species.

***Atheta (Amidobia) subcrenulata* BERNHAUER, 1907** (Fig. 11)

Male: Piceous in ground colour and subopaque; head and pronotum are similarly dark brown, while elytra are a little paler; abdomen is black, but feebly paler toward base; antennae are uniformly brown; legs a little paler. Head is relatively large, broadly flattened above and not retracted behind eyes; a faint fovea, which may be seen under a favourable condition, is present on the vertex; the surface is densely covered with microsculpture composed of small reticulation to give an alutaceous appearance. Eyes are moderate in size, but its diameter is shorter than post-genae. Antenna is fine; ratio of segment as: I  $15 \times 7.5$  : II  $11 \times 6$  : III  $8 \times 6.5$  : IV  $5.5 \times 7.5$  : X  $7 \times 10$  : XI  $16 \times 11.5$ . *a*-sensilla of the labral margin (Fig. 11, B) is relatively long, while *c* is smaller. On labial palpus *γ*-setula (Fig. 11, C) is short and on the same level with *b*; *f* is remote from *h*. Prementum (Fig. 11, C) has the smooth and narrow median area; the setal pore of the lateral area is clearly anterior to the posterior real pore, which is remote from the median area. Pronotum is gently convex above, with an obsolete median depression, which is becoming deeper toward base; the sides are slightly converged behind; the lateral erecting setae are quite fine; the surface is nearly as on the head, but denser and subopaque. Elytron is somewhat dilated behind and not emarginate postero-externally; the surface has fine, but dense asperities. Abdomen is very obsoletely punctured throughout. Terg. VIII (Fig. 11, E) is broadly truncate behind crenulate and with many short, longitudinal markings; seta *a*-2 is close to the stigma; the microsculpture (Fig. 11, F) is a normal reticulate-type.

Median lobe (Fig. 11, G, H, I) of aedeagus is 0.24 mm long; the apical lobe is not sloping down; the costa *dt.ap.* is fairly narrow; *m.c.* is feeble near the foramen; *ar.c.* are short and nearly parallel along the middle; *v.ap.* is evanescent along the middle; *p.c.* has a low projection. The inner armature (Fig. 11, J, K) is complicated as in Fig. K: The paramedian apophyses are narrowly elongate, straight and blunt, to which basal sclerite is attached. The median apophysis is broad and fairly prolonged distally on each side of it (*l*); instead of the distal process in other species a straight median sclerite (*m*) is present, whose base is hooked anker-like (*a*); the transverse sclerite (*t*) is clearly rounded in front and firmly continued to the basal plate, which is broadly extended behind the transverse sclerite; there is a pair of thin, narrow

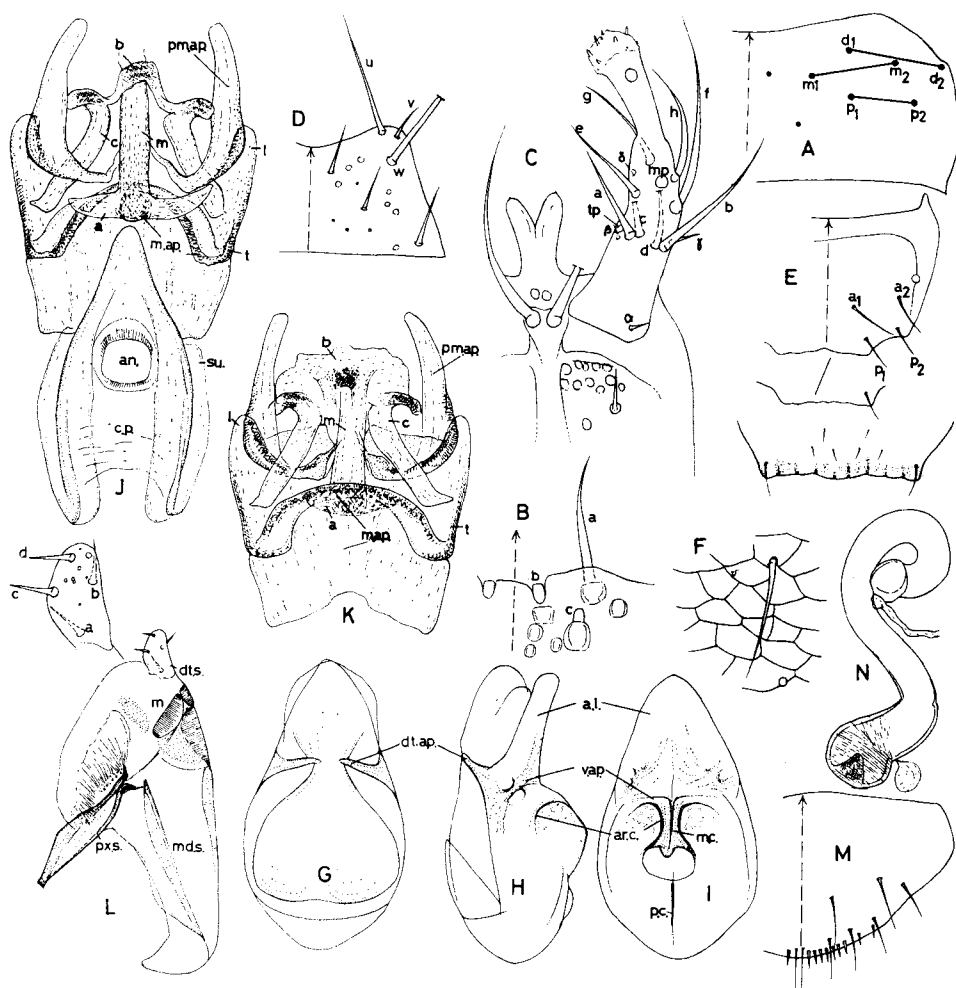


Fig. 11. *Atheta (Amidobia) subcrenulata* BERNHAUER, 1907 from Mt. Hiei. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, I, Median lobe (dor. lat. & ventr. view); J, K, Inner armature of aedeagus (dors. & ventr. view); L, Lateral lobe; M, ♀ stern. VIII; N, Spermatheca.

lobes (*c*) situated on the underside of the armature, they are continued to an apical thickening (*b*) overlying the median sclerite. Copulatory piece is narrowly elongate; the apical process is obtusely rounded and gently sinuate before the annellus; the suspensoria are long. Lateral lobe has an oblong apodeme (*m* in Fig. 11, L) in the middle; its membranous lamina has a faint sign of apodeme; the marginal apodeme posterior to the distal segment is fairly broad. The distal segment (Fig. 11, L) is oblong, small and with subequal short setae.

Length. ca. 1.75 mm (Head long 0.3 mm × wide 0.33; pronotum 0.32 mm × 0.40 mm; elytra 0.35 mm × 0.5 mm).



Female: Stern. VIII (Fig. 11, M) is evenly rounded behind and devoid of emargination; there is a row of up to 10+10 short and long marginal setae. Spermatheca (Fig. 11, N) is fairly sinuate and shortly coiled; the bursa has a robust umbilicus within.

Specimens examined: HOKKAIDO: Apoi, 2♂, (1.VIII 1971, R. YOSHI). IWATE: Chusonji, 5♀, (21.VI 1971, R. YOSHI). TOKYO: Ueno-Park, 2♂, 1♀, (25.II 1972, m.). SHIGA: Mt. Ibuki, 1♀, (5.VII 1973, R. YOSHI); Ishiyama, 1♂, (22.V 1971, R. YOSHI). KYOTO: Oohara 3♂, 4♀, (22.III 1971, m.); Mt. Hiei, 3♂, 2♀, (18.VI 1971, m.), 3♂, 1♀, (3.VI 1971, R. YOSHI), 1♀, (7.VI 1971, R. YOSHI); Midorogaike, 4♂, 4♀, (27.V 1973, R. YOSHI); Takaraike, 2♂, 2♀, (10.VI 1971, m.); Hiroawanoike, 2♂, 1♀, (16.VI 1972, m.); Funaokayama, 2♂, 1♀, (5.VI 1971, R. YOSHI); Kitashirakawa, 9♂, 10♀, (3.IV 1971, m.), 7♂, 11♀, (7.V 1971, m.), 2♂, 4♀, (14.VI 1971, R. YOSHI), Yoshidayama, 2♂, 2♀, (21.VI 1972, R. YOSHI), 2♂, 2♀, (17.VI 1971, m.); Yamashina, 6♂, 8♀, (12.IV 1971, R. YOSHI); Daigo, 1♂, (25.VI 1973, R. YOSHI); Fushimi-Inari, 1♂, (22.V 1973, R. YOSHI). NARA: Asuka, 7♂, 10♀, (1.IV 1973, m.). OSAKA: Takatsuki, 8♂, 10♀, (6.VI 1971, m.); Izumi-Katsuragi, 2♂, (3.III 1973, m.); Ushitakiyama, 3♂, 4♀, (31.V 1971, m.). WAKAYAMA: Kooyasan, 1♂, 1♀, (2.VI 1957, M. YOSHIDA). TOTTORI: Yonago 1♂, 1♀, (20.IV 1972, m.). OKAYAMA: Mitsuishi, 3♂, 4♀, (21.V 1973, R. YOSHI); Kurashiki, 2♂, (17.IV 1972, m.).

The type specimen from Kanagawa coincides fairly well with my specimens from various parts of Japan. With respect to the body colour, it is stable among all the specimens examined. Not only in the outer form, but also in minute details of the body, the species is concordant with *A. amacula* (STEPHENS, 1812) of Europe. The difference is restricted to the inner armature of aedeagus. In *A. subcrenulata* the paramedian apophyses are longer, the laterally produced basal plate (*b*) is broader and the copulatory piece is more obtuse. Besides the female spermatheca is more elongate.

***Atheta (Amidobia) kobensis* CAMERON, 1933**

(Fig. 12)

Male: Ground colour yellowish brown, with a weak lustre; head black, pronotum bright yellowish red; elytra are largely infusate leaving the somewhat rufescent area around the humeri and scutellum; abdomen is bright reddish brown or often darker and the tergites V–VII are intensively dark brown; antennae a little infusate, the basal segments paler. Head is relatively small and rounded; in the middle a fine fovea is present; microsculpture may be fine, but discernible on the dorsum. Eyes reduced in size, feebly convex from the head and a little shorter than the post-genae. Antenna is fine; ratio of segments as: I 16×8.0 : II 12×6.5 : III 6.5×7.0 : IV 5.0×7.5-X 6.5×11.2 : XI 16×11.5. Seta *d*-2 of labrum (Fig. 12, A) is nearly on the same level with *d*-1; *p*-2 is located slightly anterior to *p*-1. On labral margin *a*-sensilla (Fig. 12, B) is long; *c* is obtuse and small. Setula *γ* of labial palpus (Fig. 12, C) is nearly on the level of seta *b*; *e* is on the same level with *f*. The median area of prementum (Fig. 12, C) is nearly parallel. The setal pore of the lateral area is

fairly close to the anterior real pore; other pseudopores are small, confined to the inner corner. *v*-setula of mentum (Fig. 12, D) is remote from *u*. Pronotum is gently convex above, only shallowly depressed before the scutellum; the sides are slightly

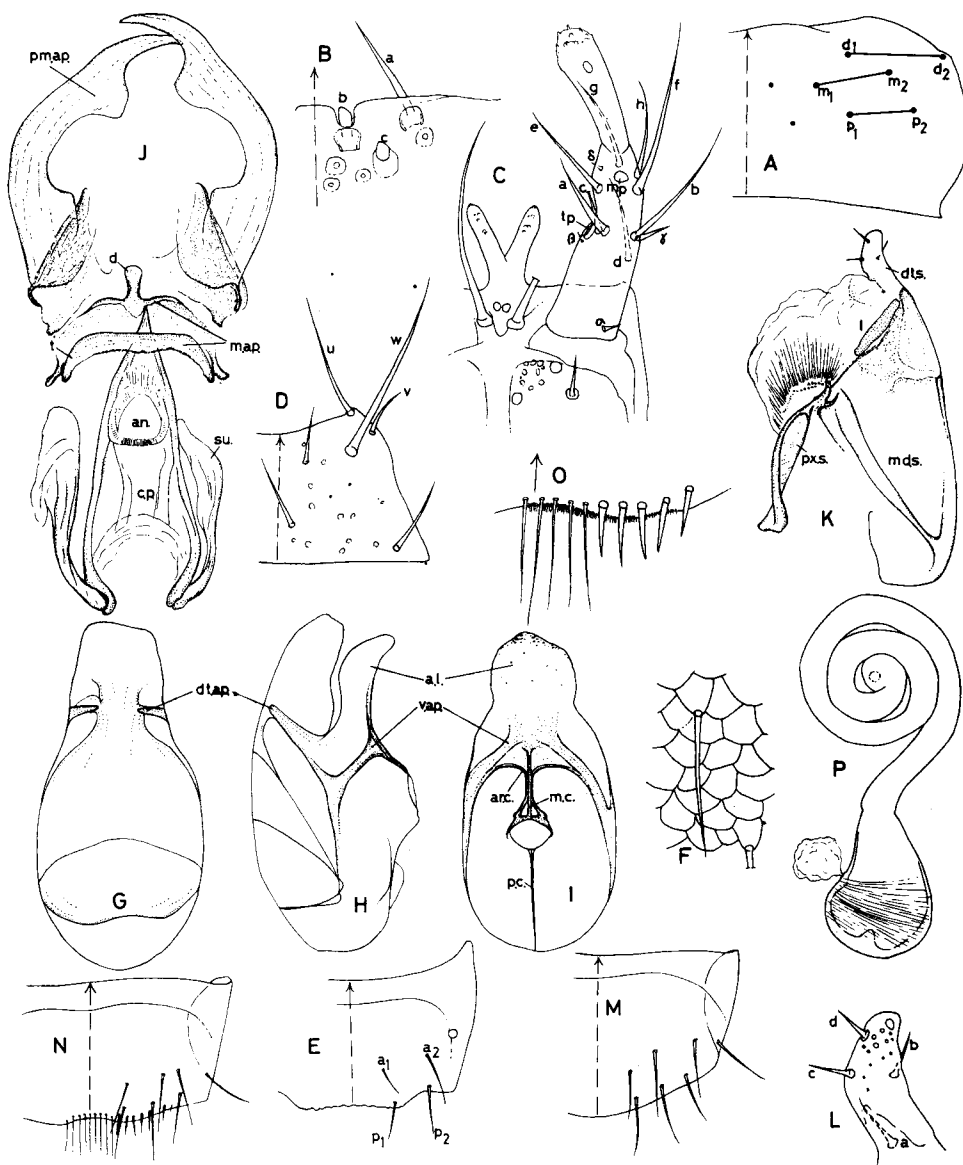


Fig. 12. *Atheta (Amidobia) kobensis* CAMERON, 1933 from Kibune. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, I, Median lobe (dors. lat. & ventr. view); J, Inner armature of aedeagus; K, Lateral lobe; L, Distal segment of lateral lobe; M, ♂ stern. VIII; N, O, ♀ stern. VIII & its marginal setae; P, Spermatheca.

narrowed behind; the lateral erecting setae are short, strongly recurved; puncture and microsculpture are as on the head, but a little rougher. Elytron is not emarginate behind, densely punctured. Abdomen is finely punctured and pubescent. The posterior margin of terg. VIII (Fig. 12, E) is broadly truncate, slightly emarginate and feebly crenulate in its full length.

The median lobe of aedeagus (Fig. 12, G, H, I) is 0.27 mm long, elongate ovate in dorsal view; in lateral view the apical lobe is robust, very gradually bent down distally in dorsal view; in lateral view the apical lobe is robust, very gradually bent down distally; in ventral view it is slightly constricted near the base and quite obtuse at apex; costa *m.c.* is well differentiated; *ar.c.* are confluent for some distance along the middle; *v.ap.* is normally developed. The inner armature (Fig. 12, J) is peculiar by the presence of the large unciform paramedian apophysis, which bears a large dentation at the inner margin; there is a short triangular lobe at the base of each paramedian apophysis. Median apophysis consists of a narrow transverse sclerite (*t* in Fig. 12, J) and short obtuse process (*d*), whose apical part is bent downwards. Copulatory piece is uniformly tapering before annellus and ending to a sharply pointed apex. Lateral lobe (Fig. 12, K) has a narrow apodeme in the middle (*l* in Fig. 12, K); the distal segment (Fig. 12, L) is short, lightly curved, with subequally short setae from which *b* is on the same level with *c*.

Length. 1.93 mm (Head long 0.31 mm  $\times$  wide 0.38 mm; pronotum 0.33 mm  $\times$  0.38 mm; elytra 0.36 mm  $\times$  0.52 mm).

Female: Stern. VIII (Fig. 12, N) has a distinct emargination, whose margin has a series of ca. 10+10 long and short setae (Fig. 12, O) arranged along the margin. Spermatheca (Fig. 12, P) is coiled three-times and with the prolonged bursa, whose umbilicus is strongly reduced.

Specimens examined: TOKYO: Takao, 1♂, 2♀, (20.III 1973, m.). KANAGAWA: Yugawaratooge, 1♀, (19.III 1973, R. Yosii). KYOTO: Kibuneyama, 8♂, 10♀, (14.VI 1972, R. Yosii); Hieizan, 55 ex., (7.III 1972, m.). NARA: Hoosanji, Ikoma, 2♀, (24.III 1973, m.). OSAKA: Mt. Izumi-Katsuragi, 7♂, 9♀, (3.III 1973, m.); Minoo, 10♂, 11♀, (2.V 1973, R. Yosii). OKAYAMA: Mitsuishi, 1♂, (21.V 1973, R. Yosii).

The type specimen from Kobe (♂) is quite concordant with these specimens. No variability of colour is present in the specimens examined. From *A. silvatica* BERNHAUER, 1907 it is rather easily distinguished by the narrower head and smoother integument of the fore-parts. From *A. wireni* BRUNDIN, 1948 of Europe it is recognized by the broader pronotum and differently formed aedeagus.

***Atheta (Amidobia) puthzi* n. sp.**

(Fig. 13)

Male: Piceous in ground colour, weakly shining and with very short, dense pubescence; head is black, while the pronotum and elytra are a little paler; abdomen is black, with basal tergites slightly paler; antennae are scarcely paler toward the base; legs brown. Head is gently convex above and clearly rounded behind eyes;

the dorsum is finely foveolate in the middle; integument is furnished with dense, minute asperities and well-defined microsculpture. Eyes are large, fairly convex from the head and fully as long as the post-ocular region. Antenna is feebly dilated distally; ratio of segments as: I  $14 \times 6.5$  : II  $9.5 \times 6.0$  : III  $7.5 \times 6.0$  : IV  $4.5 \times 7.0$  - X  $6 \times 10$  : XI  $16 \times 10$ . Seta *d-2* of labrum (Fig. 13, A) is posteriorly dislocated and on the same level with *p-1*; *m-2* is on the level of *m-1*. *a*-sensilla of the labral margin (Fig. 13, B) is reduced, whereas *b* is fairly enlarged. Seta *b, f* of labial palpus (Fig. 13, C) are situated on the inside of the lateral margin; *e* is anterior to *f* in position. From prementum (Fig. 13, C) the median area is rather broad; all the setal and real pores are confined to the corner. Pronotum is not modified, but with a faint depression before the scutellum; the sides are fairly retracted posteriorly and the margins are straight in basal half; the lateral erecting setae are fine; surface is furnished with very dense microsculpture and fine asperities all over. Elytron is a little rougher than the

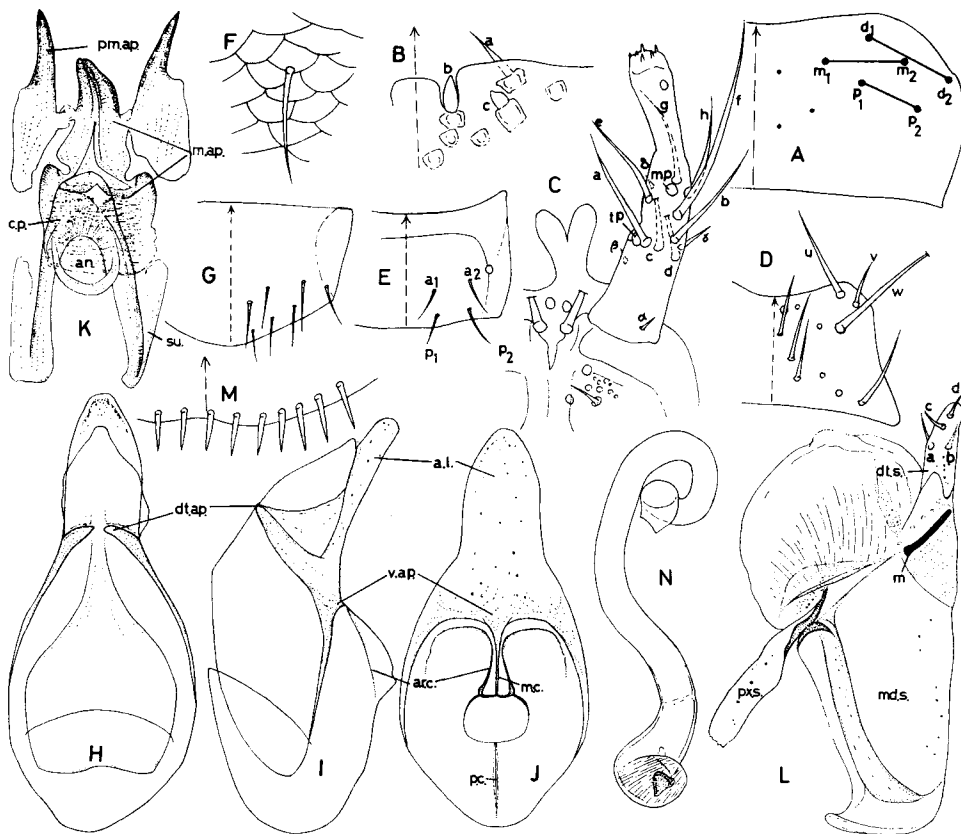


Fig. 13. *Atheta (Amidobia) puthzi* n. sp. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, ♂ stern. VIII; H, I, J, Median lobe (dors. lat. & ventr. view); K, Inner armature of aedeagus; L, Lateral lobe; M, ♀ marginal setae of stern. VIII; N, Spermatheca.

pronotum. Abdomen is obsoletely punctured and with reduced erecting setae. Terg. VIII (Fig. 13, E) is not modified, but seta *a-2* is nearer to the stigma than to *a-1*. From the median lobe of aedeagus (Fig. 13, I, J) apical lobe is fairly long, gradually sloping downwards and ending in a rounded apex; the costa *m.c.* is entire; *ar.c.* are fairly approximate before the middle; *v.ap.* is evanescent. The paramedian apophyses of the inner armature (Fig. 13, K) are short, straight and spiniform; the median apophysis is composed of a broad, laterally sclerotized basal plate and a robust distal process; copulatory piece is narrowed anterior to the annellus to form an obtusely rounded apex. Lateral lobe (Fig. 13, L) has a very narrow apophysis (*m* in Fig. 13, L) in the middle; the distal segment is feebly narrowed to an obtuse apex; seta *a* is on the same level with *b*.

Length. 1.95 mm (Head long 0.26 mm  $\times$  wide 0.33 mm; pronotum 0.28 mm  $\times$  0.38 mm; elytra 0.34 mm  $\times$  0.48 mm).

Female: Stern. VIII (Fig. 13, M) is slightly emarginate behind; there is a row of 7+7 subequally short marginal setae. Spermatheca (Fig. 13, N) is very long; the duct is coiled shortly and with a contorted apex; the umbilicus of bursa is robust.

Holo-(♂) and allotype: Otokoyama, Kyoto Pref., (1.II 1973, Dr. R. YOSHI).

Other specimens examined: KYOTO: Daimonjiyama, 55 ex., (31.III 1973, R. YOSHI); Fushimi-Inari, 45 ex., (22.V 1973, R. YOSHI). NARA: Hoosanji, Ikoma, 48 ex., (24.III 1973, m.). OSAKA: Izumihara, nr. Ibaraki, 34 ex., (8.III 1973, R. YOSHI); Kabusanji, nr. Takatsuki, 1 ♀, (14.V 1971, m.); Katsuoji, Minoo, 1 ♂, 5 ♀, (21.V 1973, R. YOSHI), 1 ♂, 1 ♀, (19.VII 1973, m.).

In the external feature the present species is very alike to *A. parvicornis* MULSANT ET REY, 1873 of Europe, for which I have 1 ♀ from Beskides in Rheinland. From the description of the cited species in BRUNDIN 1948 the Japanese species differs in the shape of the inner armature of aedeagus, much longer spermatheca and in longer elytra. As the body is broad this species is near *A. vulpina* n. sp., but recognized by the different shape of aedeagus and darker body colour.

With my best wishes the present species is named after Dr. V. PUTHZ, who has furnished me with rich material of the European Aleochariane and gave me appropriate criticism to my works on Aleocharinae.

***Atheta* (*Amidobia*) *unidentata* (K. SAWADA, 1971)**

(Fig. 14)

*Ischnopoda* (*Microdota*) *unidentata* K. SAWADA, 1971

Male: Median area of the prementum is fairly narrow and not diverging posteriorly; setal and real pores of the lateral area are clearly remote from one another; pseudopores are obscure in outline and widely distributed over the surface. *v-setula* of the mentum is markedly posterior, on the same level with *w*. The costa *dt.ap.* (Fig. 14, A, B) of median lobe are stout at basis and far remote from each other; apical lobe is very short for the corpus and with slight emargination. *ar.c.* are contiguous in the middle; *v.ap.* is well defined; *p.c.* has a low projection. In the inner armature (Fig. 14, D) the paramedian apophyses are prolonged distally, incurved abruptly in

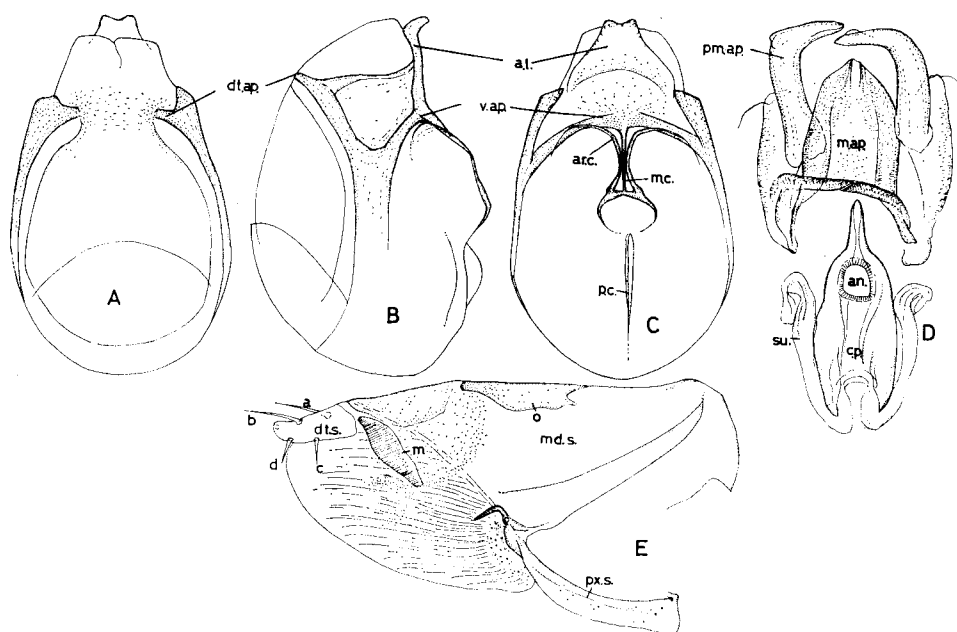


Fig. 14. *Atheta (Amidobia) unidentata* (K. SAWADA, 1970); Type. **A, B, C**, Median lobe (dors. lat. & ventr. view); **D**, Inner armature of aedeagus; **E**, Lateral lobe.

a right angle and ending in a slender apex; the median apophysis is composed of a distal process and a basal plate: The former is converted to a pair of broad lobes nearly touching to a blunt apex; the latter is fairly sclerotized laterally and nearly reaching the apex of the distal process; the basal transverse sclerite is divided into two narrow sclerites overlapping to each other. Copulatory piece is, as described before, with membraneous suspensoria. Lateral lobe has a broad apodeme (*m* in Fig. 14, E) in the middle and the lateral margin (*o*) is broadly sclerotized; the distal segment is normally elongate; all four setae are lateral in position.

The species is unique with its trifurcate glossa and fairly emarginate median lobe of aedeagus. Besides, setula  $\beta$ ,  $\gamma$ ,  $\delta$  of labial palpus are long in the present species. In appearance it is similar to *A. lohsei* n.sp., but terg. VIII of *A. unidentata* is fairly emarginate in its full length. At present it is known only from Akiyoshi, Yamaguchi Pref.

***Atheta (Amidobia) yoshidai* n. sp.**

(Fig. 15)

Male: Ground colour brown, shining; head is intensively pigmented, whereas pronotum and elytra are brown; abdomen is nearly black, basal segments are slightly paler; antennae dark brown and a little paler toward the base; legs brown. Head is faintly foveolate in the middle of the dorsum; sides are nearly parallel on the posterior half behind the eyes; integument is clothed with very fine, but distinct microsculpture. Eyes feebly convex laterally, about as long as the post-genae. Antenna

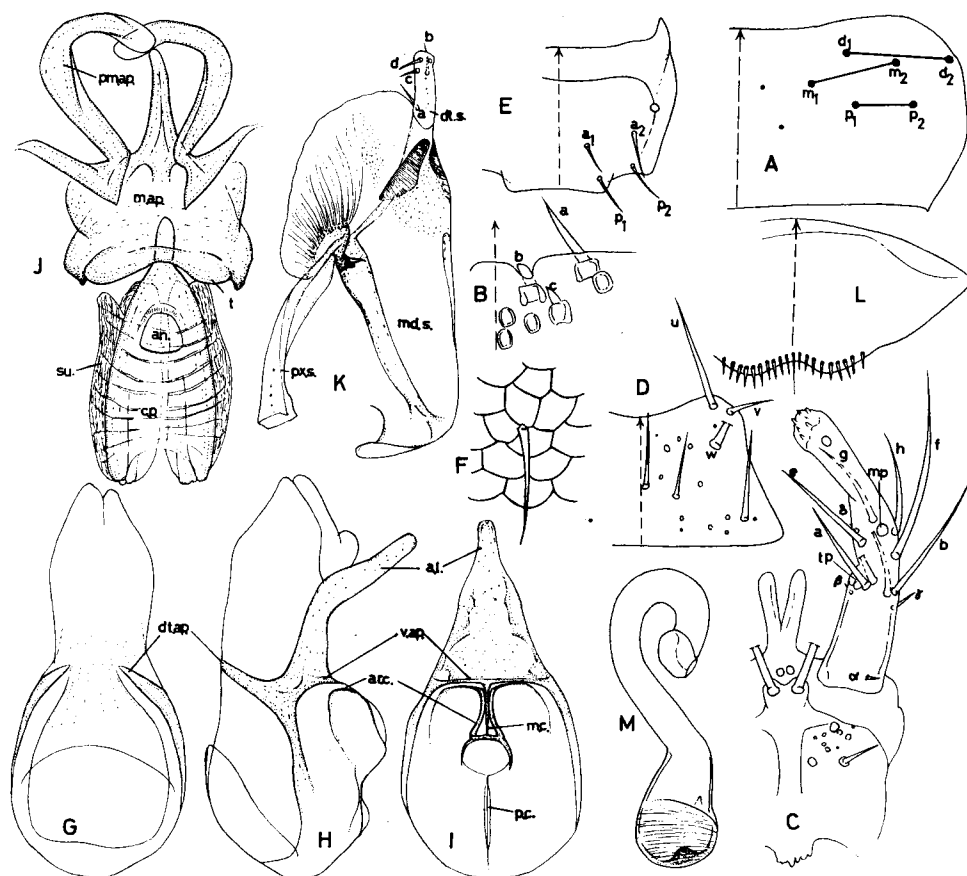


Fig. 15. *Atheta (Amidobia) yoshidai* n. sp. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, I, Median lobe (dors. lat. & ventr. view); J, Inner armature of aedeagus; K, Lateral lobe; L, ♀ stern. VIII; M, Spermatheca.

robust and short; ratio of segments as: I  $15 \times 8.5$  : II  $10 \times 6.2$  : III  $6.5 \times 7$  : IV  $6 \times 8$  - X  $7 \times 11$  : XI  $18 \times 11.5$ .  $d-2$  of labrum (Fig. 15, A) is nearly on the level of  $d-1$ . On labral margin  $c$ -sensilla (Fig. 15, B) is narrowly pointed.  $\gamma$ -setula of labial palpus (Fig. 15, C) is clearly posterior to  $b$ ;  $e$  is posterior to  $f$  in position.  $v$ -setula of mentum (Fig. 15, D) is much closer to  $u$  than to  $w$ . Pronotum is somewhat convex above, more declivous than usual laterally; the dorsum is faintly foveolate along the middle; the sides are rounded in front and behind; marginal erecting setae are long and straight; surface is minutely sculptured and devoid of distinct punctures. Elytron is a little more roughly sculptured than on the pronotum. Abdomen is obsoletely punctured. Terg. VIII (Fig. 15, E) is broadly truncate and hind margin is quite even in its full length. The median lobe of aedeagus (Fig. 15, H) has unusually prolonged apical lobe which is, in profile, fairly geniculate in the middle; costa *ar.c.* (Fig. 15, I)

of each side are close together as in case of *A. kobensis*; *v.ap.* is scarcely differentiated in the middle. From the inner structure paramedian apophysis (Fig. 15, J) is very long, slender, and strongly rounded distally; median apophysis is composed of a distal process and a basal plate: the former is markedly produced, while the latter is broad and indistinctly sclerotized in most part; an obsolete transverse sclerite (*t*) is present behind it, when closely observed. The copulatory piece is very unique, apical process is obtusely produced and annellus is rather small for the corpus. The distal segment of lateral lobe (Fig. 15, K) is narrowly elongate and with obtuse apex; setae *b*, *c*, *d* are aggregated distally, while *a* is basal in position.

Length. 1.75 mm (Head long 0.30 mm  $\times$  wide 0.35 mm; pronotum 0.34 mm  $\times$  0.38 mm; elytra 0.36 mm  $\times$  0.51 mm).

Female: Stern. VIII (Fig. 15, L) is deeply emarginate and with up to 10+10 subequal short setae. Spermatheca (Fig. 15, M) is recurved, but not coiled; the bursa has an obtuse umbilicus within.

Holo- ( $\sigma^7$ ) and allotype: Kotsusan, Tokushima Pref., (31.X 1965, M. YOSHIDA).

With its peculiar structure of the aedeagus the present new species is very unique among the *kobensis* - group. In the shape of median lobe the present species is similar to *A. dura* BRUNDIN, 1948 of Europe, but the inner armature of aedeagus is quite different and the terg. VIII of male is broadly truncate behind. The species is dedicated to Mr. MASATAKA YOSHIDA who has furnished me with nice materials of Aleocharinae including this new species.

***Atheta (Amidobia) spinula* (K. SAWADA, 1970)**

(Fig. 16)

*Ischnopoda (Hygroecia) spinula* K. SAWADA, 1970

Male: The apical lobe of aedeagus (Fig. 16, C) is, in profile, fairly sinuate along the middle and with a gently sloping apex; in ventral view the costa *ar.c.* (Fig. 16, D) are clearly approximate in the middle; *v.ap.* is entire in its full length; *p.c.* has a large projection. From the inner armature the paramedian apophysis (Fig. 16, E) is narrowly prolonged and geniculate, with a shortly hooked apex. Median apophysis has paired short processes basally (*t*); basal plate is laterally sclerotized. Lateral lobe of aedeagus (Fig. 16, F) has a broad apophysis (*m* in Fig. 16, F) in the middle; there is another narrow apophysis (*d*) on the membranous lamina, which is evanescent to the inside; other broad one (*o*) is present along the lateral margin behind the distal segment.

Female: Stern. VIII (Fig. 16, A) is only slightly emarginate in the middle, where there are up to 15+15 long and short marginal setae arranged as in Fig. 16, A.

New specimens examined: Shiga, Nagano Pref., 1 $\sigma^7$ , 2 $\varphi$ , (17.X 1967, Dr. R. YOSII).

As the stern. VIII of male has no additional row of the marginal setae the species is transferred from *Hygroecia* (= *Philhygra*) to *Amidobia*. In the outer shape of aedeagus the present new species coincides fairly well with *A. palleola* (ERICHSON, 1837) of Europe (cf. BRUNDIN 1948), but may be distinguished from it by fairly broader, laterally scler-



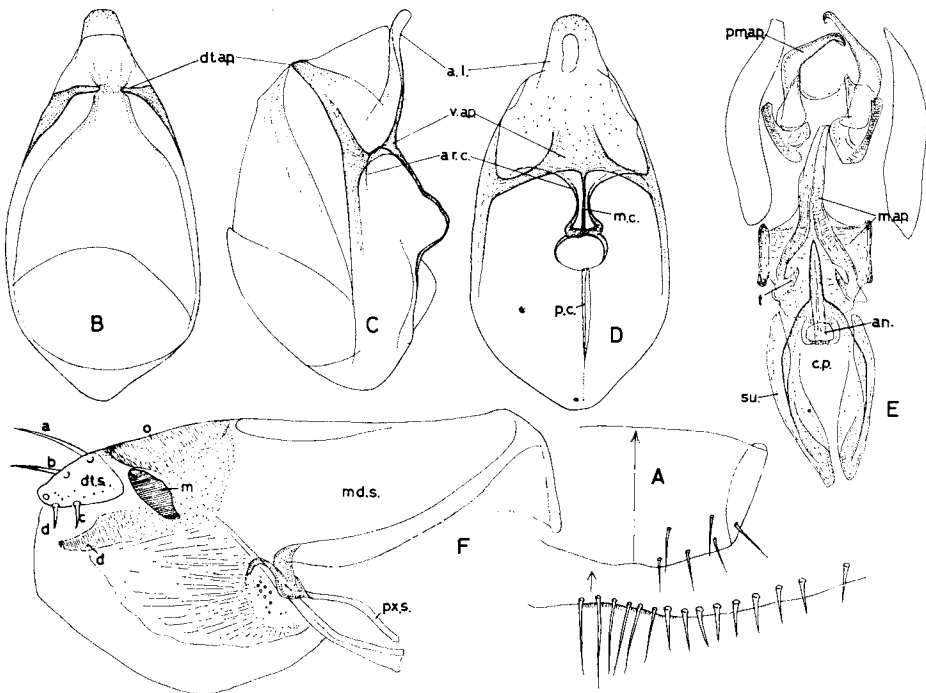


Fig. 16. *Atheta (Amidobia) spinula* (K. SAWADA, 1970) from Shiga. **A, B**, ♀ stern. VIII & its marginal setae; **B, C, D**, Median lobe (dors. lat. & ventr. view); **E**, Inner armature of aedeagus; **F**, Lateral lobe.

rotized basal plate of the median apophysis and different shape of the paramedian apophyses. Besides, the body colour is seemingly darker and microsculpture of pronotum and elytra is more obsolete. The species must be more exactly compared. It is also allied to *A. muris* n. sp. in the external feature, but differs from it by narrower and apically hooked paramedian apophyses as well as by the different form of the median apophysis of the inner armature.

***Atheta (Amidobia) muris* n. sp.**

(Fig. 17)

Male: Brown in ground colour, very shining, with short but conspicuous pubescence; head is intensively pigmented, while the pronotum is brown or dusky reddish brown; elytra are so much infuscate as the head, leaving the obscurely rufescent area around humeri; abdomen brown, with reddish tinge, terg. V–VIII suddenly blackish; antennae brown, paler at the basis; legs brown. Head is small; post-genae almost parallel; a faint median depression may be present on the vertex; the microsculpture is not distinct on the dorsum. Eyes small, not protruded from the contour of head. Antenna is fine; ratio of segments as: I  $15 \times 7.0$  : II  $10.5 \times 6.2$  : III  $7.5 \times 6.0$  : IV  $4.5 \times 7.0$  -X  $6.5 \times 10$  : XI  $14.5 \times 10$ . *p*-2 of labrum (Fig. 17, A) is situated posterior to the level of *p*-1. On labral margin *c*-sensilla (Fig. 17, B) is fairly elongate

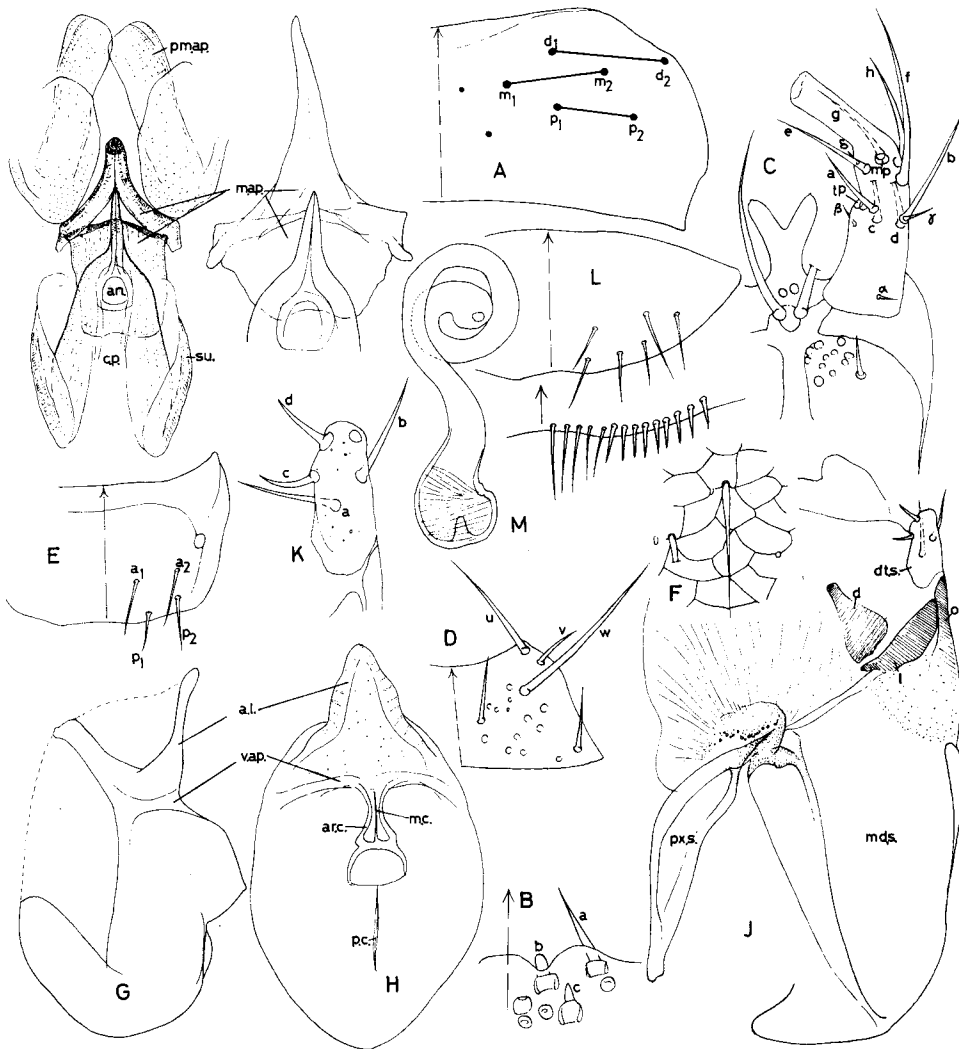


Fig. 17. *Atheta (Amidobia) muris* n. sp. A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, Median lobe (lat. & ventr. view); I, Inner armature of aedeagus; J, K, Lateral lobe & its distal segment; L, ♀ stern. VIII; M, Spermatheca.

and pointed when compared to *b*. Setula  $\beta$  of labial palpus (Fig. 17, C) is clearly remote from *tp*; *e* is distal in relation to *f*. From the lateral area of prementum setal pore (Fig. 17, C) is subequally separating from two real pores. On the mentum *v*-setula (Fig. 17, D) is nearer to *u* than to *w*. Pronotum is rather small, broadly depressed before the scutellum; the lateral erecting setae are straight and short. Elytron is relatively narrow; the integument is a little rougher than the pronotum. Abdomen is very finely and somewhat asperately punctured especially on the basal tergites.

Terg. VIII (Fig. 17, E) is truncate behind, straight and never crenulate; seta *a-2* is just so remote from the stigma as from *a-1*; the microsculpture (Fig. 17, F) is somewhat irregular reticulate-type.

The median lobe of aedeagus (Fig. 17, G, H) is ovate in outline, 0.34 mm long; in profile the apical lobe is markedly narrow, slightly bent down near apex; in the ventral view it is short and triangular; costa *m.c.* may be reduced before attaching *v.ap.*; *ar.c.* are clearly approximate but not confluent. Paramedian apophysis (Fig. 17, I) are converted into a pair of broad, simple lobes, whose apices are quite obtuse. Median apophysis is composed of 2 stout spines forming a peculiar distal process, whose distal portion is vertically bent downwards. Copulatory piece has narrowly elongate apical process alike to that of *A. spinula*. Lateral lobe (Fig. 17, J) has 2 large apodemes (*l, d* in Fig. 17, J) together with the other narrow marginal one (*o*).

Length. 1.65 mm (Head long 0.25 mm  $\times$  wide 0.30 mm; pronotum 0.25 mm  $\times$  0.35 mm; elytra 0.28 mm  $\times$  0.44 mm).

Female: Stern. VIII (Fig. 17, L) is unusually short, slightly emarginate and with densely beset marginal setae. Spermatheca (Fig. 17, M) is normally coiled and with a large umbilicus.

Holo-(♂), allo- and paratypes (5♂, 5♀): Hieizan, Kyoto Pref., (28.IX 1971, m.).

Other specimens examined: TOKYO: Asakawa, 1♂, 1♀, (11.II 1963, G. IMADATE). KANAGAWA: Yugawaratoge, 1♂, 2♀, (19.III 1973, R. YOSHI). NAGANO: Yamadera, Ina, 1♂, 1♀, (10.IV 1961, Y. HAYASHI). ISHIKAWA: Hidari, nr. Kanazawa, 1♂, 1♀, (14.V 1961, Y. HAYASHI). SHIGA: Yogo, 1♀, (22.X 1971, m.). KYOTO: Ashu, 2♂, (28.V 1972, R. YOSHI); Hanasetoge, 1♂, 2♀, (11.IX 1972, R. YOSHI); Yase, 1♂, 2♀, (28.IX 1971, R. YOSHI); Hieizan, 5♂, 7♀, (18.XII 1971, m.). 1♂, 1♀, (23.VI 1971, m.), 2♂, 3♀, (16.X 1971, m.), 6♂, 15♀, (12.IX 1971, R. YOSHI), 10♂, 15♀, (28.XII 1971, m.); Kuramayama, 10♂, 13♀, (20.VII 1972, R. YOSHI); Kibuneyama, 1♂, (18.IX 1972, R. YOSHI); Midorogaike, 2♂, 3♀, (7.X 1971, m.); Daimonjiyama, 1♂, 1♀, (24.V 1971, R. YOSHI); Sookokuji-monzencho, 2♂, 1♀, (31.XII 1971, R. YOSHI); Fushimi-Inari, 2♂, 3♀, (15.XII 1972, R. YOSHI); Daigo, 3♀, (4.XII 1972, m.). OSAKA: Mt. Izumi-Katsuragi, 1♂, 2♀, (3.III 1973, m.); Ooyamazaki, 2♂, 3♀, (2.V 1971, R. YOSHI); Katsuoji, 1♂, (21.V 1973, R. YOSHI); Izumihara, nr. Ibaraki, 1♂, (8.IV 1973, R. YOSHI); Hiraoka, 2♂, 2♀, (4.IV 1952, m.). NARA: Kasugayama, 2♂, 4♀, (25.IV 1972, m.). WAKAYAMA: Kii-Hata, 1♂, 2♀, (3.III 1957, S. GOTO); Kii-Ena, 1♂, (17.II 1957, S. GOTO). TOTTORI: Kokoge, 2♂, (26-30. IX 1973, T. ARITA). OKAYAMA: Mitsuishi, 1♂, (21.V 1973, R. YOSHI). KOCHI: Ukitsu, 2♂, 4♀, (6.IV/1973, R. YOSHI). FUKUOKA: Kurume, 1♂, 2♀, (15.IV 1972, R. YOSHI); Fukuoka, 1♂, 2♀, (18.IV 1972, m.).

The present new species is one of the most prevalent among the *Amidobia* of Japan. From *A. spinula* (K. SAWADA, 1970) it is distinguishable by broader paramedian apophysis of the aedeagus, straight lateral erecting setae of pronotum, and narrower body form with in distinct microsculpture on the fore-parts of the body. From *A.*

*silvatica* BERNHAUER, 1907, it is different by narrower head and much darker body colour.

***Atheta (Amidobia) bulbosa* n. sp.**

(Fig. 18)

Male: Ground colour rufescent and shining, with very short but conspicuous pubescence; head dark brown, while pronotum and elytra are reddish brown, the latter is gradually infusate postero-externally; abdomen is dark brown, and paler anteriorly; antennae uniformly brown; legs brown. Head is gently convex above, with a faint vertical depression visible in a favourable angle; the microsculpture is fine but distinct. Eyes moderate in size, as long as the post genae, which are gently rounded. Antenna is stout, clearly dilated distally; ratio of segments as; I  $13 \times 7$ : II  $9 \times 5$ : III  $6 \times 7$ : IV  $4 \times 7.5$ —X  $5 \times 6.5$ : XI  $15 \times 10.5$ . Seta *p*-2 of labrum (Fig. 18, A) is anterior to *p*-1. *b*-sensilla of the labral margin (Fig. 18, B) is truncate. On labial palpus seta *b* (Fig. 18, C) is situated inside the margin;  $\gamma$  is slightly posterior to *b* and on the level of  $\beta$ . On lateral area of prementum setal pore (Fig. 18, C) is so much close to the real pore as in *A. kobensis*. *v*-setula of mentum (Fig. 18, C) is rather remote from *u*. Pronotum is evenly convex above, neither depressed nor foveolate in the middle; sides are nearly parallel on the posterior half; lateral erecting setae are straight and short; the surface is furnished with very fine, dense asperities throughout. Elytron is broad, with the integument more coarsely roughened than the pronotum. Abdomen is obsoletely punctured on the basal segments; terg. VIII (Fig. 18, E) is broadly truncate, with the margin very obsoletely crenulate in its full length.

Median lobe of aedeagus (Fig. 18, H) is 0.22 mm long; apical lobe is fairly constricted in the middle and gently bending down apically; costa *ar.c.* are slightly approximate in the middle, Paramedian apophysis (Fig. 18, I) is very broad, feebly sclerotized excepting the apical narrow parts. Inner half of the apical part has a sclerite (*s* in Fig. 18, I), while its outer half is membranous. Median apophysis consists of two main parts, short but stout distal process and a thin basal plate; the former is vertically bent down on apex forming an obtuse apical thickening; the latter is broad, more or less sclerotized especially along the basal half of its margin, and with a short median branch (*m*) on each side. Copulatory piece (Fig. 18, I) is clearly constricted before the annellus, and distinctly divergent basally; apical process is relatively short; peculiarly there is a large, bulbous swelling at the basis of these processes. On the lateral lobe a middle apodeme (*l* in Fig. 18, J) is strongly reduced to a narrow band; on the laminate sacculle fine striation (*s*) is confined to a narrow area around the base; distal segment is oblong; seta *a, b* are subequally short.

Female: unknown.

Length. 1.78 mm (Head long 0.25 mm  $\times$  wide 0.31 mm; pronotum 0.27 mm  $\times$  0.34 mm; elytra 0.31 mm  $\times$  0.44 mm).

Holo-(♂) and paratype (1♂): Shiga, Nagano Pref., (7. VII 1972, Dr. R. YOSII); Kumogahata, Kyoto Pref., (23. X 1970, Dr. R. YOSII).

In the shape and construction of the median lobe of aedeagus, and in the external

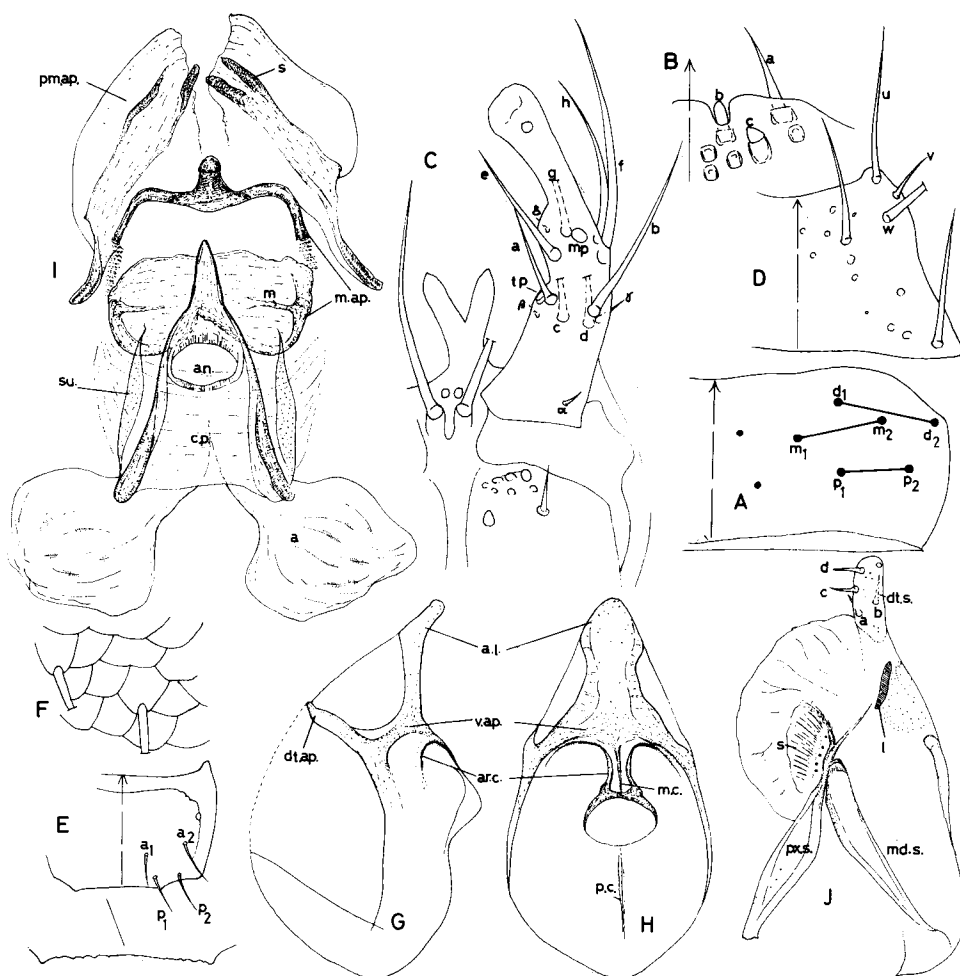


Fig. 18. *Atheta (Amidobia) bulbosa* n. sp., A, Labral chaetotaxy; B, Labral margin; C, Labium; D, Mentum; E, ♂ terg. VIII; F, ditto, microsculpture; G, H, Median lobe (lat. & ventr. view); I, Inner armature of aedeagus; J, Lateral lobe.

features of the body the present species is closely allied to *A. muris* n. sp., but differs from it by different shape of the inner armature of aedeagus and reduced median apodeme of the lateral lobe.

***Atheta (Amidobia) oviformis* (K. SAWADA, 1970)**

(Fig. 19)

*Ischnopoda (Microdota) oviformis* K. SAWADA, 1970

Male: In aedeagus (Fig. 19, A,B,C) the apical lobe is fairly constricted basally and with a very faint emargination at apex; the costa *dt.ap.* is relatively broad; *ar.c.* are confluent for some distance along the middle; *m.c.* is long, entire; *v.ap.* is well-developed in its full length. In the inner armature (Fig. 19, D) the paramedian

apophysis is strongly incurved, unciform and with a large, broad dentation on its inner margin; from the base of the process an obtuse lobe is protruded; the median apophysis is composed of a short, rounded distal process ending in a vertically bending apex (Fig. 19, E); its basal margin is strongly dilated on each side and firmly united at the basis with the basal plate, which is heavily sclerotized and transverse; copulatory piece is acutely pointed anterior to the annellus and with lightly sinuate margins; suspensorium is represented by an elongate lobe. Lateral lobe (Fig. 19, F) has a broad apodeme (*m.* in Fig. 19, F) in the middle and with another indistinct apodeme (*d.*) at the base of the distal segment.

Female: Stern. VIII (Fig. 19, G) is short, rather deeply emarginate behind, and beset with a row of sparse, short and long marginal setae.

New specimens examined: NAGANO: Shigayama 1♂, (21. VI 1968, R. Yosii); Kumanoyu, 1♀, (3. VII 1972, R. Yosii); Shibutoge, 1♀, (7. VII 1972, R. Yosii).

The present species is apparently related to *A. kobensis* CAMERON, 1933, in general facies as well as in the inner armature of aedeagus. However, the paramedian apophyses are more strongly rounded, with larger inner tooth, which is more proximal in position. In the present species the median apophysis has the distal process more strongly produced on each side and the broad transverse sclerite is completely confluent with the distal process.

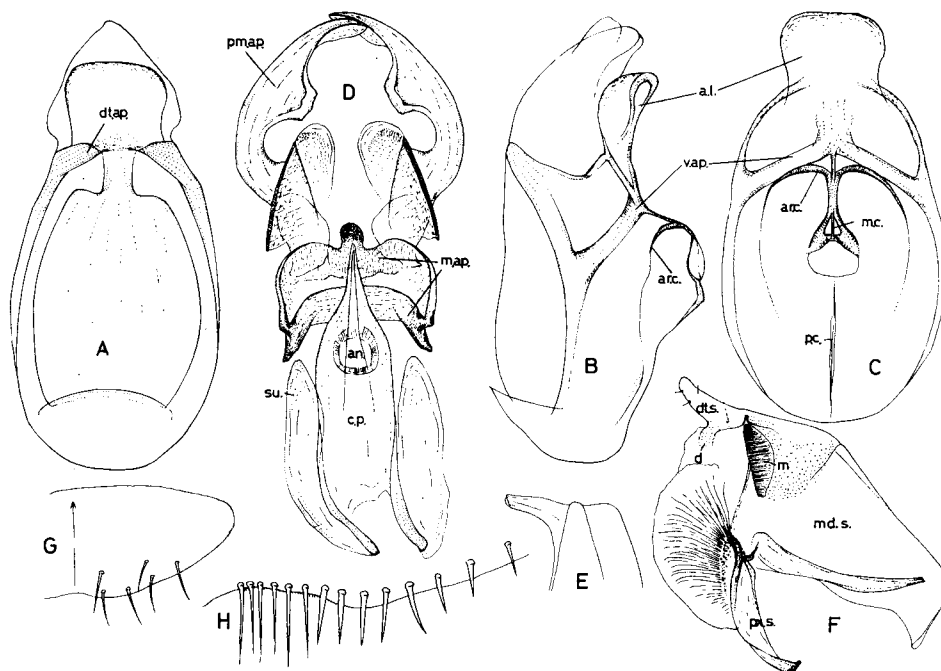


Fig. 19. *Atheta (Amidobia) oviformis* (K. SAWADA, 1970) from Shiga, A, B, C, Median lobe (dors. lat. & ventr. view); D, Inner armature of aedeagus; E, Apex of median apophysis (lat. view); F, G, ♀ stern. VIII & its marginal setae; H, Lateral lobe.

*Atheta (Amidobia) vulpina* n. sp.

(Fig. 20)

Male: Ground colour reddish brown, shining, with conspicuous pubescence; head blackish, sometimes rufescent indistinctly from the frons to the vertex; pronotum is bright reddish brown, while elytra are fairly infusate, but paler than on head; the basal portion of the elytra may be obscurely rufescent; abdomen is reddish brown, but terg. V-VII are blackish; antennae are infusate distally, with 3 basal segments paler; legs are pale brown. Body is robust. Head is large, feebly depressed on the vertex, with conspicuous microsculpture. Eyes well protruded from the head, as long as the post-genae, which is fairly rounded laterally. Antenna is robust; ratio of segments as; I  $15 \times 8.0$ : II  $10.5 \times 6.2$ : III  $7.8 \times 6.8$ : IV  $5.0 \times 7.7$ —X  $6.0 \times 11$ : XI  $16 \times 11$ . Seta *d*-1 of labrum (Fig. 20, A) is clearly anterior to *d*-2; the proximal row is nearly parallel to the medial row. *c*-sensilla of labral margin (Fig. 20, B) is pointed, much broader than *b*. Setula  $\gamma$  of labial palpus (Fig. 20, C) is located anterior to *b*, while *d* is more posterior than *c*. Median area of prementum is fairly converging behind; setal pore is characteristically lateral in position. On the mentum *v*-setula (Fig. 20, D) is situated posteriorly, nearly on the level of *w*. Pronotum is gently convex above and faintly depressed along the middle; a fine fovea is often present before the scutellum; surface is finely, but distinctly punctured and sculptured; the marginal erecting setae are straight and long. The mesosternal process is sharply pointed at apex and hardly reaching the middle of the coxal cavities. Elytron is broad, with the surface much rougher than on the pronotum. Abdomen bears fine punctures, which are rather sparsely distributed over the basal segments; each segment is furnished with erecting stout setae. Terg. VIII (Fig. 20, E) is broadly truncate, obsoletely crenulate in its full length and with many short longitudinal markings.

The median lobe of aedeagus (Fig. 20, G,H,I) is 0.28 mm long; apical lobe is fairly increaseate proximally and strongly bent down in profile; costa *ar.c.* are clearly touching together in the middle. The inner structure (Fig. 20, J) is characteristic, paramedian apophysis is, in contrast to *A. kobensis* etc., slender, curved and simply pointed without forming any inner teeth; median apophysis consists of 2 slender spines forming a long distal process (*p* in Fig. 20, J) and whose apex is clearly bifurcate; a transverse sclerite (*t*) is alike to that of *A. kobensis*; copulatory piece is uniformly tapering anterior to the annellus and with a subsinuate outline. Lateral lobe (Fig. 20, K) has a long apodeme (*l* in Fig. 20, K) in the middle and a narrow marginal one (*o*).

Length. 1.72 mm (Head long 0.48 mm  $\times$  wide 0.51 mm; pronotum 0.45 mm  $\times$  0.58 mm; elytra 0.51 mm  $\times$  0.75 mm).

Female: The emargination of stern. VIII (Fig. 20, L) is deep: the serial setae along the margin (Fig. 20, M) are up to 12+12 in number. Spermatheca (Fig. 20, N) is compactly coiled and with a small umbilicus.

Holo-(♂), allo- and paratypes (5♂, 5♀): Mitsuishi, Okayama Pref., (21. V 1973, Dr. R. YOSII).

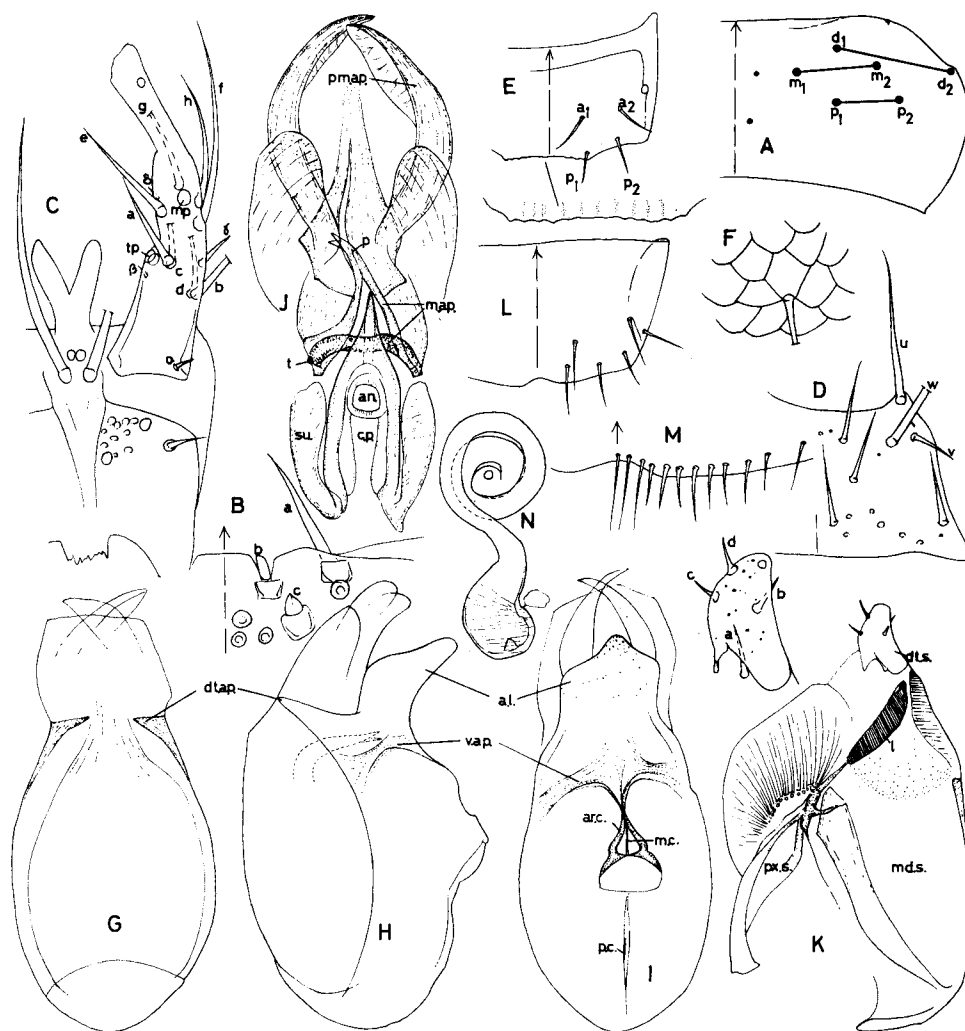


Fig. 20. *Atheta (Amidobia) vulpina* n. sp. A, Labral chaetotaxy; B, Labral margin; C, Labium, D, Mentum; E, F, ♂ terg. VIII & its microsculpture; G, H, I, Median lobe (dors. lat. & ventr. view); J, Inner armature of aedeagus; K, Lateral lobe; L, M, ♀ stern. VIII & its marginal setae; N, Spermatheca.

Other specimens examined: KYOTO: Yonakitoge nr. Kibune, 4♂, 2♀, (22. IX 1973, R. YOSHII); Hieizan, 1♂, (18. XII 1971, m.). NARA: Kasugayama, 4♂, 6♀, (24. X 1972, m.).

Externally the present new species is almost the same as *A. kobensis*, only the body is seemingly a little robuster. Inner structure of the aedeagus of these species are, however, quite different especially in the form of the paramedian apophyses. Besides the setula  $\beta$  of the labial palpus is more proximally dislocated and posterior to  $\gamma$ , and



the apical lobe is more strongly sloping downwards in this new species.

***Atheta* (*Amidobia*) *annuliventris* KRAATZ, 1859**

*Atheta* (*Microdota*?) *annuliventris*: FENYES 1914

*Ischnopoda* (s. str.) *annuliventris*: K. SAWADA 1971

In all probability the species is to be included in *Amidobia* as may be indicated by the structure of prementum.

Following species were not recovered, the results of the investigation of type specimens are as below:

***Atheta* (*Amidobia* ?) *sublaevigata* BERNHAUER, 1907**

The type specimen from Okayama is near *A. unidentata*, but the elytra are longer, abdomen is more irregularly punctured and antennae are more slender.

Dark reddish brown in ground colour. Head is considerably narrower than the pronotum (head: pronotum as 4 : 5). Antenna is normally long; with the segment III much shorter than II; IV slightly transverse. The pronotal pubescence along the middle is directed forwards. Elytron is not emarginate postero-externally. Microsculpture of terg. VIII is apparently imbricate. The posterior margin of it is broadly truncate and minutely crenulate in its full length.

Length: long 1.55 mm  $\times$  wide 0.44 mm.

***Atheta* (*Amidobia* ?) *ocyusina* BERNHAUER, 1907**

In appearance the type from Okayama is similar to the female of *A. vagans*, but body is not subopaque and smaller in size.

Dark brown in ground colour and fairly shining. Antenna is normally long and fine; segment II is stout and short; III is a little shorter than II; IV is about as long as broad. The pronotal pubescence is relatively long and directed backwards along the middle. Elytron is a little longer than the pronotum, when measured from the apex of the scutellum to the hind margin of elytra. Terg. VIII of abdomen is clearly produced and broadly rounded behind, neither truncate nor emarginate and with obscure microsculpture.

Length. long 1.62 mm  $\times$  wide 0.48 mm.

***Atheta* (*Amidobia* ?) *silvatica* BERNHAUER, 1907**

The type specimen from Negishi is closely related to *A. kobensis*, but differs in smaller eyes, more broadly rounded pronotum, simply truncate tergite and darker body colour.

Antenna is bright reddish yellow, long and feebly dilated distally; segment III is much shorter than II; IV is a little broader than long; X is fairly transverse. Eyes are moderate in size, nearly as long as the post-genae in lateral view. Pronotum is slightly

narrowed behind and with long, curved lateral erecting setae; Pubescence along the middle is directed forwards. Elytron is distinctly longer than the pronotum and not emarginate postero-externally. The hind margin of terg. VIII is neither crenulate nor emarginate.

Length: long 1.85 mm  $\times$  wide 0.45 mm.

***Atheta* (*Amidobia* ?) *flavonitescens* BERNHAUER, 1907**

The type from Shimabara is apparently ♂. Body is fairly convex and strongly shining. Head is without depression. Antenna is fine and long, with segment II stout and short; III is a little shorter than II; IV is about as long as broad. Pronotum is evenly convex above. The pubescence along the middle is directed backwards. Microsculpture of terg. VII is transverse and linear. Terg. VIII is simply produced and lightly pointed behind.

With its very shining and smooth body, posteriorly directed pubescence of pronotum and transverse microsculpture of tergite the species is very characteristic.

Length. long 2.35 mm  $\times$  wide 0.58 mm.

**Resumé**

Subgenera *Amidobia* (= *Microdota*) and *Philhygra* have the character in common that the median area of prementum is quite smooth and without any pseudopores. *Amidobia* THOMSON, 1858 and *Microdota* MULSANT ET REY. 1873 must be united to the former, as there is no essential difference between them. Twenty species of the subgenus have been examined with respect to their detailed characters and the taxonomic relations among them have been tentatively inspected. Inner armature of the median lobe furnishes the most effective character to separate the allied species of *Amidobia*. The manipulation to extirpate it from the capsule is necessary for the exact determination of species.

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